ART (60)

Aims:

1. To acquire a knowledge of artistic terms, facts, concepts, theories and principles in drawing and painting, i.e. imagination, creativity, expression, aesthetic sense, organisation, observation and interest.

2. To develop an interest in the world of art.

3. To develop an artistic attitude and values through the study of art.

4. To acquire skills in observations, handling tools and drawing illustrations.

CLASSES IX AND X

PART 1: EXTERNAL EXAMINATION

There will be four papers, Candidates will be required to offer any two papers:

Paper 1 (3 hrs) Drawing and/or Painting from Still Life - 100 Marks

Paper 2 (3 hrs) Drawing and/or Painting from Nature - 100 Marks

Paper 3 (3 hrs) Original Imaginative Composition in Colour - 100 Marks

Paper 4 (3 hrs) Applied Art - 100 Marks

PAPER 1 (3 hours) Drawing and/or Painting from Still Life

A group of objects which will be artificial or natural and may include such things as cut flowers, fruits, vegetables, a growing plant, as well as domestic or other artificial objects: the group may be drawn or painted. The work can be carried out, if the candidate wishes, in relation to the surroundings or the part of the room in which the group is placed. If the group is painted, the background must be included.

PAPER 2 (3 hours) Drawing and/or Painting from Nature

This paper is divided into two separate sections. Candidates may offer either A or B. In both sections, the subject may be interpreted freely, either in a decorative or in a realistic manner.

A. Study of the structure of natural forms: such as a spray or branch, which may include flowers, foliage or fruit, fossils, bones, etc. Candidates are expected to reveal their appreciation of natural growth or structure by means of drawing or painting.

B. A subject will be set for drawing or painting out of doors. There should be evidence of a direct study from nature.

PAPER 3 (3 hours) Original Imaginative Composition in Colour

A paper containing a list of alternative subjects will be given to candidates one week before the examination. The actual composition will be executed in the examination room after a period of not less than 7 days from the distribution of the paper to the candidates; sketches or other notes must not be taken into the examination room. Since this is a test of original work, it would be inappropriate for any form of guidance to be given to candidates other than that printed on the question paper. A variety of themes will be set; these may be given in the form of titles indicating the subject or of specified subjects for inclusion in composition, or in any other form that will stimulate the imagination. Candidates should base their work, if possible, on scenes which they have themselves observed. Any style or technique including that which is traditional in the candidate’s own area may be used.

PAPER 4 (3 hours) Applied Art

Candidates will be required to answer any one question. The object of this paper is to test the ability of candidates in craftwork where the material is restricted to flat paper, ink and/or colour. Questions will be set requiring the design and execution of the following:

- the page of a book, book cover, or end paper;
- a notice or pictorial poster;
- a card such as Christmas card or invitation card, or emblem;
- a patterned paper for a specific purpose.
Several but not all of these alternative subjects will be set and candidates will be required to select any one of them. There will be an opportunity to make full use of the calligrapher's art withdrawn and painted, pen-made or brush-written lettering.

Notes

(a) Any medium may be used provided that it is suitable for the subject. Painted work must be carried out in a quick-drying medium and must be completely dry before it is dispatched. When acrylic paint is used for examination work, it must be mixed with water. All paints used must be of adequate quality; if coloured crayons or chalk are used, they must have a range and quality comparable with that of paints and must be carefully fixed at the examination centre before the work is sent to the Examiner. Monochrome may be used where permitted by the regulations for each Paper but will not be accepted as satisfying the requirement in respect of colour for Paper 3.

(b) Candidates must use their judgement with regard to (i) the size of a drawing or painting (ii) the proportion of height to width within the space available. In all cases credit will be given to good composition.

(c) In each of Papers 1 to 3, the test is of free drawing or painting. Therefore, any mechanical means for the execution of the drawing or painting (such as measuring or ruling) are not allowed. Instruments and tracing papers are allowed for Paper 4, but candidates are advised to restrict their use as far as possible.

(d) Where question papers or printed instructions provide for alternative groups, etc., the Supervisor in consultation with an Art Teacher will decide which of these alternatives is to form the subject of the examination, after taking account of local convenience, etc. At centres for candidates from more than one school, both of the alternative subjects in Paper 2 (Plant Drawing) must be provided if they are required by schools or candidates.

(e) Suitable alternative subjects will be provided for the different areas, so far as this may appear desirable. Account will be taken of different climatic conditions in the selection of flower specimens, etc.

(f) The paper supplied for use in the examination room will be about 35 cm x 25 cm. Schools or candidates wishing to work on a large scale, not larger than Half-Imperial or Royal (65 cm x 50 cm) or on a different type of tone or paper, will be at liberty to provide their own. Work which is carried out on stiff boards, or which is mounted cannot be accepted. The paper used by candidates must not be less than 35 cm x 25 cm and the work submitted must fill or approximately fill the page.

(g) All drawing must be packed flat and not rolled. Half-Imperial and Royal sheets should be folded across the middle, when drawings are too large to enclose in the envelopes provided, it is essential that the information required on the front of the envelope be given and that the envelope itself be packed in the same parcel with the drawings.

(h) Examiners are caused great inconvenience by candidates failing to write their examination number either clearly or correctly, thus making identification difficult. Schools are asked to cooperate by impressing upon candidates that they must write their names on drawings and paintings on the front (top right-hand corner) and also on the back of their assignments.

They must not write anything else on the front of the picture. Failure to observe this instruction may result in loss of marks.

Standing Instructions for Supervisors

PAPERS 1 and 2:

The printed 'Instructions' for these papers, which are sent to schools well in advance of the examination, will be limited, as far as possible, to the subjects of the tests. They are for the use of the Supervisors only, in consultation with the Art teacher.

It is important that early attention should be given to the provision of the subjects required. In both Papers 1 and 2, alternative assignment must be set if required by candidates.

The group or subject should be arranged so that each candidate obtains an uninterrupted view; for Paper 1 and 2, candidates should not be more than 4m from the group. Candidates may form a semicircle but not a complete circle round the groups; more than one session may be arranged if there is a large number of candidates. The examination must be held in good light
but care must be taken that the sunlight does not fall upon the group or subject while work is in progress. If the group or subject is painted, the background must be included.

The surface on which the group of objects for Paper 1 and the group for painting only in Paper 2 is arranged must be below the level of the candidate's eye-level.

**Drawing and/or Painting from Nature:**

**Alternative A.** Study of the structure of natural forms:

It is desirable that each candidate be given a separate specimen and be permitted to handle and arrange them.

If the specimens named in the Instruction are not available, Supervisors may, with the assistance of the Art teacher, substitute other specimens as similar as possible to those which have been set. The name of the specimen used must be stated on the back of the drawing in small block letters.

Sprays, when these are set, must be reasonably large and full and in good condition: they should be displayed in a vase or bottle and be clearly visible against a plain background. The container must not be drawn.

*Or*

**Alternative B.** Direct study of nature:

A subject is to be set for drawing or painting out of doors. Evidence of direct study in the outdoors must be discernible.

**Original Imaginative Composition in Colour:**

Copies of the Paper are to be given to the candidates at least a week before the paper is taken in the examination room. Candidates should be instructed to bring their copies of the questions paper with them at the time fixed for this examination.

**Applied Art:**

At centres where necessary arrangements can be made, candidates may cut and print from a block in the examination room. Folded and cutout paper may be used in making designs. A collage may be used.

**PART 2:**

(To be assessed internally by the School - 100 marks).

**Practical Work in Art**

**(A) Course Work**

(1) Candidates will be required to practice sketching, painting, drawing, etc., in preparation for the examination. They will also undertake practical work on any of the topics suggested below. The practical work of the candidates will be assessed by the teacher as course work. The Teacher is free to assess the course work either on the basis of continuous assessment or on the basis of periodical tests.

(2) Suggested topics for practical work:

   (i)  Pottery work.
   (ii)  Sculpture; any medium.
   (iii) Carving in any available material: e.g. wood, plaster, stone.
   (iv)  Panel or relief in clay or plaster.
   (v)   Block-printing, batik, tie and dye, etc., on any material.
   (vi)  Printing from original wood or lino block.
   (vii) Creative Photography.
   (viii) Cartoon and portrait drawing.
   (ix)  Animation.

**(B) Finished Work**

In addition to the course work the candidates will have to submit four pieces of finished Artwork for assessment by the External Examiner. The topics on which these pieces of Artwork may be based can be taken from the syllabus or from any of the topics listed in (A) (2) above or from any other aspect of Art.
(C) **Assessment**

The teacher and the External Examiner will assess the *Artwork* of the candidates on impression by placing the work of the candidates in groups, giving the following aspects due consideration:

- Imaginative expression.
- Quality of pattern, line and materials.
- Skill in the use of tools and materials.
- Use of colour.

*Other aspects may also be considered depending on the nature of the practical work.*

(D) **Award of Marks**

Subject Teacher (Internal Examiner) 50 marks  
External Examiner 50 marks

The total marks obtained out of 100 are to be sent to the Council by the Head of the school.

The Head of the school will be responsible for the entry of marks on the mark sheets provided by the Council.
### INTERNAL ASSESSMENT IN ART - GUIDELINES FOR MARKING WITH GRADES

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Preparation</th>
<th>Procedure/ Testing</th>
<th>Observation</th>
<th>Inference/ Results</th>
<th>Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade I (4 marks)</td>
<td>Size, perspective, placement and left over spaces utilized well.</td>
<td>Shapes, likeness, flow of drawing and flow of line.</td>
<td>Usage of light and darkness, colour scheme, texture-innovation</td>
<td>Perfect mastery over the colour, brush handling and the instruments used.</td>
<td>Inspired, technically sound and good to eyes.</td>
</tr>
<tr>
<td>Grade II (3 marks)</td>
<td>Any one aspect is wrong.</td>
<td>Any one aspect is wrong.</td>
<td>All the above aspects are without innovation.</td>
<td>Good handling of above aspects.</td>
<td>All above aspects are without inspiration.</td>
</tr>
<tr>
<td>Grade III (2 marks)</td>
<td>Any two aspects are wrong.</td>
<td>Any two aspects are wrong.</td>
<td>All the above aspects are without proper texture.</td>
<td>Poor handling of some aspects.</td>
<td>Good to the eyes but with technical errors.</td>
</tr>
<tr>
<td>Grade IV (1 mark)</td>
<td>Any three aspects are wrong.</td>
<td>Any three aspects are wrong.</td>
<td>Only one aspect is proper</td>
<td>Poor handling of most aspects.</td>
<td>Not so presentable and with technical errors.</td>
</tr>
<tr>
<td>Grade V (0 marks)</td>
<td>All the aspects are wrong.</td>
<td>All the aspects are wrong.</td>
<td>All the aspects are wrong.</td>
<td>Poor in all aspects.</td>
<td>Unappealing in all aspects.</td>
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SCIENCE (52)
BIOLOGY

SCIENCE Paper - 3

Aims:
1. To acquire the knowledge of the economic importance of plants and animals.
2. To develop an understanding of the inter-relationship between sustainability and environmental adaptations.
3. To develop an understanding of the interdependence of plants and animals so as to enable pupils to acquire a clearer comprehension of the significance of life and its importance in human welfare.
4. To understand the capacities and limitations of all the biological and economic activities so as to be able to use them for a better quality of life.
5. To acquire the ability to observe, experiment, hypothesize, infer, handle equipment accurately and make correct recordings.

CLASS IX

There will be one paper of two hours duration of 80 Marks and Internal Assessment of Practical Work carrying 20 Marks.

The paper will be divided into two sections, Section I (40 marks) and Section II (40 marks).

Section I (compulsory) will contain short answer questions on the entire syllabus.

Section II will contain six questions. Candidates will be required to answer any four of these six questions.

1. Basic Biology
   (i) The cell, a unit of life, protoplasm, basic difference between prokaryotic and eukaryotic cell; differences between an animal and a plant cell.
      • A basic understanding of the cell theory, structure of plant and animal cell with functions of various cell organelles. (Protoplasm, Cytoplasm, Cell Wall, Cell Membrane, Nucleus, Nucleolus, Mitochondria, Endoplasmic Reticulum, Ribosome, Golgi bodies, Plastids, Lysosomes, Centrosome and Vacuole).
      • Major differences between a prokaryotic and eukaryotic cell.
      • Differences between a plant cell and an animal cell should be mainly discussed with respect to cell wall, centrosome, vacuoles and plastids.
   (ii) Tissues: Types of plant and animal tissues.

2. Flowering Plants
   (i) Flower: Structure of a bisexual flower, functions of various parts.
      • A brief introduction to complete and incomplete flowers.
      • Essential and non-essential whorls of a bisexual flower; their various parts and functions.
      • Inflorescence and placentation (meaning only)
      (Charts or actual specimens may be used to help enhance clarity of concepts.)
   (ii) Pollination: self and cross-pollination.
      • Explanation, advantages and disadvantages of self and cross-pollination.
      • Agents of pollination and the characteristic features of flowers pollinated by various agents such as insects, wind, and water.
      • A brief idea as to how nature favours cross pollination.
(iii) Fertilisation.

- Events taking place between pollination and fertilisation leading to the formation of zygote in the embryo sac.
- A brief explanation of the terms double fertilization and triple fusion.
- Fruit and Seed - definition and significance.

3. **Plant Physiology**

(i) Structure of dicot and monocot seeds, Germination of seeds, types, and conditions for seed germination.

- Structure and germination of Bean seed and Maize grain.
- Differences between monocot and dicot seeds.
- Differences between hypogeal and epigeal germination.
- Conditions for seed germination - To be explained and supported by experiments.

(ii) Respiration in plants: outline of the process, gaseous exchange.

- A brief outline of the process mentioning the terms Glycolysis, Krebs cycle and their significance.
- A reference to be made to aerobic and anaerobic respiration with chemical equations in each case.
- Experiments on gaseous exchange and on heat production.

4. **Diversity in living organisms**

(i) A brief outline of the five Kingdom classification.

- Main characteristics of each kingdom with suitable examples:
  - Monera, Protista, Fungi.
  - Plantae - Thallophyta, Bryophyta, Pteridophyta and Spermatophyta.
- Animalia - non-chordates from Porifera to Echinodermata and Chordates - all five Classes.

(ii) Economic importance of Bacteria.

(a) Useul role of bacteria:

- Medicine: antibiotics, serums and vaccines
- Agriculture: nitrogen cycle (role of nitrogen fixing, nitrifying and denitrifying bacteria)
- Industry - curing of tea, tanning of leather.

(b) Harmful role of bacteria - spoilage of food, diseases in plants and animals, bio-weapons.

(iii) Economic importance of Fungi.

A brief idea of the useful role of Fungi in breweries, bakeries, cheese processing, and mushroom cultivation. (Processes of manufacture are not required).

5. **Human Anatomy and Physiology**

(a) Nutrition:

(i) Classes of food; balanced diet. Malnutrition and deficiency diseases.

- Functions of carbohydrates, fats, proteins, mineral salts (calcium, iodine, iron and sodium), vitamins and water in proper functioning of the body.
- Sources of vitamins, their functions and deficiency diseases.
- Meaning and importance of a ‘Balanced Diet’.
- Role of cellulose in our diet.
- Causes, symptoms and prevention of Kwashiorkor and Marasmus.

(ii) The structure of a tooth, different types of teeth.

- Structure of a tooth to be discussed with the help of a diagram.
- Functions of different types of teeth.
- Dental formula of an adult.

(iii) Digestive System: Organs, digestive glands and their functions (including enzymes and their functions in digestion, absorption and assimilation of digested food).
6. Health and Hygiene

(i) A brief introduction to maintaining good health.
General idea of personal hygiene, public hygiene and sanitation.

(ii) A brief introduction to communicable, non-communicable, endemic, epidemic, pandemic and sporadic diseases; modes of transmission.

- Meaning of each of the above with examples.
- Modes of transmission: air borne, water borne; vectors (housefly, mosquito, cockroach).

(iii) Bacterial, Viral, Protozoan, Helminthic diseases:

- Bacterial: Cholera, typhoid, tuberculosis.
- Viral: AIDS, Chicken pox, Hepatitis.
- Protozoan: Malaria, Amoebic Dysentery, Sleeping sickness.
- Helminthic: Ascariasis, Taeniasis, Filariasis.

(symptoms and measures to control the above diseases.)

(Scientific names of causative agents not required).

(iv) Aids to Health: Active and passive immunity.

- Meaning of Active and passive immunity.
- An understanding of the use and action of the following – vaccination, immunization, antitoxin, serum, antiseptics, disinfectants, antibiotics.
- An idea of the local defense system and its merits, difference between antiseptics and disinfectants.

(v) Health Organisations: Red Cross, WHO.

Major activities of the Red Cross and WHO.
7. Waste generation and management

(a) Sources of waste - domestic, industrial, agricultural, commercial and other establishments.

- Domestic waste: paper, glass, plastic, rags, kitchen waste, etc.
- Industrial: mining operations, cement factories, oil refineries, construction units.
- Agricultural: plant remains, animal waste, processing waste.
- Municipal sewage: Sewage, degradable and non-degradable waste from offices, etc.
- e-waste: brief idea about e-waste.

(b) Methods of safe disposal of waste.

- Segregation, dumping, composting, drainage, treatment of effluents before discharge, incineration, use of scrubbers and electrostatic precipitators.
- Segregation of domestic waste into biodegradable and non-biodegradable by households: garden waste to be converted to compost; sewage treatment plants.

### INTERNAL ASSESSMENT OF PRACTICAL WORK

The practical work is designed to test the ability of the candidates to make accurate observations from specimens of plants and animals.

#### PLANT LIFE

(i) The examination of an onion peel under the microscope to study various parts of the cell.

(ii) A cross-pollinated flower to be examined and identified and the parts to be studied and labelled e.g. Hibiscus.

(iii) Specimens of germinating seeds with plumule and radicle (the bean seed and maize grain) for examination, identification, drawing and labelling the parts.

#### ANIMAL LIFE

(i) The examination of a human cheek cell under the microscope to study various parts of the cell.

(ii) Identification of sugar, starch, protein and fat through conduct of relevant tests.

(iii) Examination and identification of specimens belonging to the following groups of animals:
- Non Chordata - Porifera, Coelenterata, Platyhelminthes, Nemathelminthes Annelida, Arthropoda, Mollusca and Echinodermata.
- Chordata - Pisces, Amphibia, Reptilia, Aves, Mammalia.

Identification of the structure of the following organs through specimens/models and charts: Lung and skin.

(iv) Experiments to show the mechanism of breathing. Bell jar experiment should be discussed. Comparison should be made with the human lungs and respiratory tract to show the mechanism of breathing.

(v) Visit a few establishments in the locality such as motor repair workshops, kilns, pottery making units, fish and vegetable markets, restaurants, dyeing units. Find out the types of wastes and methods prevalent for their disposal. On the basis of the information collected prepare a report, suggest measures to improve the environmental conditions.

(vi) Visit a water treatment plant, sewage treatment plant or garbage dumping or vermi composting sites in the locality and study their working.
There will be one paper of two hours duration of 80 marks and Internal Assessment of practical work carrying 20 marks.

The paper will be divided into two sections, Section I (40 marks) and Section II (40 marks).

Section I (compulsory) will contain short answer questions on the entire syllabus.

Section II will contain six questions. Candidates will be required to answer any four of these six questions.

1. Basic Biology
   (i) Cell Cycle and Cell Division.
      Cell cycle – Interphase (G₁, S, G₂) and Mitotic phase.
      Cell Division:
      - Mitosis and its stages.
      - A basic understanding of Meiosis as a reduction division (stages not required).
      - A brief idea of homologous chromosomes and crossing over leading to variations.
      - Significance and major differences between mitotic and meiotic division.
   (ii) Structure of chromosome.
      Basic structure of chromosome with elementary understanding of terms such as chromatin, chromatid, gene structure of DNA and centromere.
   (iii) Genetics: Mendel’s laws of inheritance and sex linked inheritance of diseases.
      - The three laws of Mendel.
      - Monohybrid cross – phenotype and genotype.
      - Dihybrid cross – Only phenotype.
      - The following terms to be covered: gene, allele, heterozygous, homozygous, dominant, recessive, mutation, variation, phenotype, genotype.
      - Sex determination in human beings.
      Sex linked inheritance of diseases to include only X-linked like haemophilia and colour blindness.

2. Plant Physiology
   (i) Absorption by roots, imbibition, diffusion and osmosis; osmotic pressure, root pressure; turgidity and flaccidity; plasmolysis and deplasmolysis; the absorption of water and minerals; active and passive transport (in brief); The rise of water up to the xylem; Forces responsible for ascent of sap.
      - Understanding of the processes related to absorption of water by the roots.
      - Characteristics of roots, which make them suitable for absorbing water.
      - Structure of a single full-grown root hair.
      - A general idea of Cohesive, Adhesive forces and transpirational pull.
      - Experiments to show the conduction of water through the xylem.
      - Concept of transpiration and its importance to plants
      - Experiments related to transpiration:
      (a) Loss in weight of a potted plant or a leafy shoot in a test tube as a result of transpiration.
      (b) Use of cobalt chloride paper to demonstrate unequal rate of transpiration in a dorsiventral leaf.
      - Mechanism of stomatal transpiration on the basis of potassium ion exchange theory.
      - Adaptations in plants to reduce transpiration.
      - A brief idea of guttation and bleeding.
(iii) Photosynthesis: the process and its importance to life in general; experiments to show the necessity of light, carbon dioxide, chlorophyll, formation of starch and release of oxygen; carbon cycle.

- The process and significance of Photosynthesis.
- The internal structure of chloroplast to be explained to give an idea of the site of light and dark reactions.
- Opening and closing of stomata based on potassium ion exchange theory.
- Overall balanced chemical equation to represent photosynthesis.
- Introduction of the terms "photochemical" for light phase and "biosynthetic" for dark phases.
- Light reaction - activation of chlorophyll followed by photolysis of water, release of O₂, formation of ATP (photophosphorylation) and NADPH.
- Dark reaction - only combination of hydrogen released by NADP with CO₂ to form glucose. (detailed equations are not required).
- Adaptations in plants for photosynthesis.
- Experiments with regard to the factors essential for photosynthesis; emphasis on destarching and the steps involved in starch test.
- A diagrammatic representation of "carbon cycle".

(iv) Chemical coordination in Plants: A general study of plant growth regulators; Tropic movements in plants.

- A brief idea of the physiological effects of Auxins, Gibberellins, Cytokinins, Abscisic acid and Ethylene in regulating the growth of plants.
- A basic understanding of the tropic movements in plants with reference to – Phototropism, Geotropism, Hydrotropism, Thigmotropism and Chemotropism (supported with suitable examples).

3. Human Anatomy and Physiology

(i) Circulatory System: Blood and lymph, the structure and working of the heart, blood vessels, circulation of blood (only names of the main blood vessels entering and leaving the heart, liver and kidney will be required). Lymphatic system.

- Composition of blood (structure and functions of RBC, WBC and platelets).
- Brief idea of tissue fluid and lymph.
- Increase in efficiency of mammalian red blood cells due to absence of certain organelles; reasons for the same.
- A brief idea of blood coagulation.
- Structure and working of the heart along with names of the main blood vessels entering and leaving the heart, the liver and the kidney.
- Concept of systole and diastole; concept of double circulation.
- Brief idea of pulse and blood pressure.
- Blood vessels: artery, vein and capillary to be explained with the help of diagrams to bring out the relationship between their structure and function.
- Brief idea of the lymphatic organs: spleen and tonsils.
- ABO blood group system, Rh factor.
- Significance of the hepatic portal system.

(ii) Excretory System: A brief introduction to the excretory organs; parts of the urinary system; structure and function of the kidneys; blood vessels associated with kidneys; structure and function of nephron

- A brief idea of different excretory organs in the human body.
- External and internal structure of the kidney;
- Parts of the urinary system along with the blood vessels entering and leaving the kidney; functions of various parts of the urinary system (emphasis on diagram with correct labelling). A general idea of the structure of a kidney tubule/nephron.
(iii) Nervous system: Structure of Neuron; central, autonomous and peripheral nervous system (in brief); brain and spinal cord; reflex action and how it differs from voluntary action.


- Parts of a neuron.
- Various parts of the external structure of the brain and its primary parts: Medulla Oblongata, Cerebrum, Cerebellum, Thalamus, Hypothalamus and Pons; their functions.
- Reference to the distribution of white and gray matter in Brain and Spinal cord.
- Voluntary and involuntary actions – meaning with examples.
- Diagrammatic explanation of the reflex arc, showing the pathway from receptor to effector.
- A brief idea of the peripheral and autonomic nervous system in regulating body activities.
- Differences between natural and acquired reflex.
- External and Internal structure and functions of the Eye and Ear and their various parts.
- A brief idea of stereoscopic vision, adaptation and accommodation of eye.
- Defects of the eye (myopia, hyperopia, hypermetropia, presbiopia, astigmatism and cataract) and corrective measures (diagrams included for myopia and hyperopia only).
- The course of perception of sound in human ear.
- Role of ear in maintaining balance of the body.

(iv) Endocrine System: General study of the following glands: Adrenal, Pancreas, Thyroid and Pituitary. Endocrine and Exocrine glands.

- Differences between Endocrine and Exocrine glands.
- Exact location and shape of the endocrine glands in the human body.
- Hormones secreted by the following glands: Pancreas: insulin and glucagon; Thyroid: only thyroxin; Adrenal gland: Cortical hormones and adrenaline; Pituitary: growth hormone, tropic hormones, ADH and oxytocin.
- Effects of hypo secretion and hyper secretion of hormones.
- A brief idea of Feedback mechanism with reference to TSH.

(v) The Reproductive System: Organs, fertilisation functions of placenta in the growth of the embryo Menstrual cycle.

- Functions of Male and Female reproductive organs and male accessory glands. An idea of secondary sexual characters.
- Structure and functions of the various parts of the sperm and egg.
- Explanation of the terms: Fertilization, implantation, placenta, gestation and parturition.
- A brief idea of the role of placenta in nutrition, respiration and excretion of the embryo; its endocrinal function.
- Functions of Foetal membranes and amniotic fluid.
- Menstrual cycle, outline of menstrual cycle.
- Role of Sex hormones: Testosterone, Oestrogen and Progesterone in reproduction.
- Identical and fraternal twins: meaning and differences only.
5. Population

Population explosion in India; need for adopting control measures - population control.

- Main reasons for the sharp rise in human population in India and in the world.
- A brief explanation of the terms: demography, population density, birth rate, death rate and growth rate of population.
- Problems faced due to population explosion: unemployment, over exploitation of natural resources, low per capita income, price rise, pollution, unequal distribution of wealth.
- Methods of population control: Surgical methods – Tubectomy and vasectomy.

6. Human Evolution

Basic introduction to Human evolution and Theories of evolution: Lamarck’s theory of inheritance; Darwin’s theory of evolution by natural selection.

- A brief idea of human ancestors – Australopithecus, Homo habilis, Homo erectus, Neanderthals, Cro-Magnon and Homo sapiens sapiens (Modern Man) with reference to the following characteristics:
  - Bipedalism
  - Increasing Cranial capacity
  - Reduction of size of canine teeth
  - Forehead and brow ridges
  - Development of chin
  - Reduction in body hair
  - Height and Posture
- Lamarck’s theory of inheritance of acquired characteristics – with reference to use of organs (e.g: neck and forelimbs of giraffe) and disuse of organs (e.g: vestigial organs in humans like wisdom teeth, vermiform appendix, pinnae).
- Darwin’s theory of Natural selection: Survival of the fittest - e.g. adaptation of peppered moth.

7. Pollution

(i) Types and sources of pollution; major pollutants.

- Air: Vehicular, industrial, burning garbage, brick kilns.
- Water: Household detergents, sewage, industrial waste, oil spills.
- Thermal pollution.
- Soil: Industrial waste, urban commercial and domestic waste, chemical fertilizers.
- Biomedical waste – used and discarded needles, syringes, soiled dressings etc.
- Radiation: X-rays; radioactive fallout from nuclear plants.
- Noise: Motor Vehicles, Industrial establishments, Construction Sites, Loudspeakers etc.

(ii) Biodegradable and Non-biodegradable wastes

Biodegradable wastes: meaning and example; paper, vegetable peels, etc.
Non-biodegradable wastes: meaning and example; plastics, glass, Styrofoam etc. Pesticides like DDT etc.

(iii) Effects of pollution on climate, environment, human health and other organisms; control measures.

- Brief explanation of: Greenhouse effect and Global warming, Acid rain, Ozone layer depletion.
- Measures to control pollution:
  - Use of unleaded petrol / CNG in automobiles
  - switching of Engines at traffic signal lights
  - Social forestry
  - Setting of sewage treatment plants
  - Ban on polythene and plastics
  - Organic farming
  - Euro Bharat vehicular standard.
  (A brief idea of the above measures)
- A brief mention of “Swach Bharat Abhiyan” - A national campaign for Clean India.
INTERNAL ASSESSMENT OF PRACTICAL WORK

The practical work is designed to test the ability of the candidates to make an accurate observation from specimens of plants and animals.

PLANT LIFE

(i) Observation of permanent slides of stages of mitosis.

(ii) Experiments demonstrating:
- Diffusion: using potassium permanganate in water.
- Osmosis: Thistle Funnel experiment and potato osmoscope.
- Absorption: using a small herbaceous plant.

(iii) Experiments on Transpiration:
- Demonstration of the process using a Bell Jar.
- Demonstration of unequal transpiration in a dorsiventral leaf using cobalt chloride paper.
- Demonstration of uptake of water and the rate of transpiration using Ganong’s potometer.

(iv) Experiments on Photosynthesis:
- To show the necessity of light, carbon dioxide and chlorophyll for photosynthesis.
- To show the release of O₂ during photosynthesis using hydrilla/elodea.

ANIMAL LIFE

(i) Identification of the structures of the urinary system, heart and kidney (internal structure) and brain (external view) through models and charts.

(ii) The identification of different types of blood cells under a microscope.

(iii) Identification of the internal structure of the Ear and Eye (Through models and charts).

(iv) Identification and location of selected endocrine glands: Adrenal, Pancreas, Thyroid and Pituitary glands with the help of a model or chart.

EVALUATION

The practical work/project work are to be evaluated by the subject teacher and by an External Examiner. (The External Examiner may be a teacher nominated by the Head of the school, who could be from the faculty, but not teaching the subject in the relevant section/class. For example, a teacher of Biology of Class VIII may be deputed to be an External Examiner for Class X, Biology projects.)

The Internal Examiner and the External Examiner will assess the practical work/project work independently.

Award of marks (20 Marks)

Subject Teacher (Internal Examiner) 10 marks
External Examiner 10 marks

The total marks obtained out of 20 are to be sent to the Council by the Head of the school.

The Head of the school will be responsible for the entry of marks on the mark sheets provided by the Council.
# INTERNAL ASSESSMENT IN SCIENCE - GUIDELINES FOR MARKING WITH GRADES

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Preparation</th>
<th>Procedure/ Testing</th>
<th>Observation</th>
<th>Inference/ Results</th>
<th>Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade I  (4 marks)</td>
<td>Follows instructions (written, oral, diagrammatic) with understanding; modifies if needed. Familiarity with and safe use of apparatus, materials, techniques.</td>
<td>Analyses problem systematically. Recognises a number of variables and attempts to control them to build a logical plan of investigation.</td>
<td>Records data/observations without being given a format. Comments upon, recognises use of instruments, degree of accuracy. Recording is systematic.</td>
<td>Processes data without format. Recognises and comments upon sources of error. Can deal with unexpected results, suggesting modifications.</td>
<td>Presentation is accurate and good. Appropriate techniques are well used.</td>
</tr>
<tr>
<td>Grade II (3 marks)</td>
<td>Follows instructions to perform experiment with step-by-step operations. Awareness of safety. Familiarity with apparatus, materials and techniques.</td>
<td>Specifies sequence of operation; gives reasons for any change in procedure. Can deal with two variables, controlling one.</td>
<td>Makes relevant observations. No assistance is needed for recording format that is appropriate.</td>
<td>Processes data appropriately as per a given format. Draws qualitative conclusions consistent with required results.</td>
<td>Presentation is adequate. Appropriate techniques are used.</td>
</tr>
<tr>
<td>Grade III (2 marks)</td>
<td>Follows instructions to perform a single operation at a time. Safety awareness. Familiarity with apparatus &amp; materials.</td>
<td>Develops simple experimental strategy. Trial and error modifications made to proceed with the experiment.</td>
<td>Detailed instructions needed to record observations. Format required to record results.</td>
<td>Processes data approximately with a detailed format provided. Draws observations qualitative conclusions as required.</td>
<td>Presentation is reasonable, but disorganised in some places. Overwriting; rough work is untidy.</td>
</tr>
<tr>
<td>Grade IV (1 mark)</td>
<td>Follows some instructions to perform a single practical operation. Casual about safety. Manages to use apparatus &amp; materials.</td>
<td>Struggles through the experiment. Follows very obvious experimental strategy.</td>
<td>Format required to record observations/ readings, but tends to make mistakes in recording.</td>
<td>Even when detailed format is provided, struggles or makes errors while processing data. Reaches conclusions with help.</td>
<td>Presentation is poor and disorganised but follows an acceptable sequence. Rough work missing or untidy.</td>
</tr>
<tr>
<td>Grade V (0 marks)</td>
<td>Not able to follow instructions or proceed with practical work without full assistance. Unaware of safety.</td>
<td>Cannot proceed with the experiment without help from time to time.</td>
<td>Even when format is given, recording is faulty or irrelevant.</td>
<td>Cannot process results, nor draw conclusions, even with considerable help.</td>
<td>Presentation unacceptable; disorganised, untidy/poor. Rough work missing.</td>
</tr>
</tbody>
</table>
Aims:
1) To acquire the knowledge of terms, concepts, processes, techniques and principles related to the subject.
2) To develop the ability to apply the knowledge of contents and principles of chemistry in unfamiliar situations.
3) To acquire skills in proper handling of apparatus and chemicals.
4) To develop scientific temper, attitude and problem solving skills.
5) To recognize Chemical Science as having an important impact on the environment relating to cycles in nature; natural resources, pollution.

CLASS IX

There will be one paper of two hours duration of 80 marks and Internal Assessment of practical work carrying 20 marks.

The paper will be divided into two sections, Section I (40 marks) and Section II (40 marks).

Section I (compulsory) will contain short answer questions on the entire syllabus.

Section II will contain six questions. Candidates will be required to answer any four of these six questions.

Note: All chemical reactions should be studied with reference to the reactants, products, conditions, observations and the (balanced) equations.

1. The Language of Chemistry
   (i) Symbol of an element; valency; formulae of radicals and formulae of compounds. Balancing of simple chemical equations.
   • Symbol – definition; symbols of the elements used often.
   • Valency - definition; hydrogen combination and number of valence electrons of the metals and non-metals; mono, di, tri and tetra valent elements.
   • Radicals – definition; formulae and valencies
   • Compounds – name and formulae.
   • Chemical equation – definition and examples of chemical equations with one reactant and two or three products, two reactants and one product, two reactants and two products and two reactants and three or four products; balancing of equations (by hit and trial method).

(ii) Relative Atomic Masses (atomic weights) and Relative Molecular Masses (molecular weights): either - standard H atom or 1/12th of carbon 12 atom.
   • Definitions
   • Calculation of Relative Molecular Mass and percentage composition of a compound.

2. Chemical changes and reactions
   (i) Types of chemical changes.
      • Direct combination
      • Decomposition
      • Displacement;
      • Double decomposition

(The above to be taught with suitable chemical equations as examples).

(ii) Energy changes in a chemical change.

   Exothermic and endothermic reactions with examples – evolution/absorption of heat, light and electricity.

3. Water
   (i) Water as a universal solvent.
      • Solutions as 'mixtures' of solids in water; saturated solutions.
• Qualitative effect of temperature on solubility (e.g. solutions of calcium sulphate, potassium nitrate and sodium chloride in water).

(ii) Hydrated and anhydrous substances.

(a) Hydrated substances:

Water of Crystallisation – meaning and examples

(b) Anhydrous substances:

Meaning and examples only

(c) Properties:

• Efflorescence
• Deliquescence
• Hygroscopy
• Removal of hardness
  (i) By boiling
  (ii) By addition of washing soda

(Definition and examples of each of the above).

(iii) Drying and Dehydrating Agents

Meaning and examples only.

(iv) Soft water and Hard water

• Meaning, (in terms of action of soap)
• Advantages and disadvantages of soft water and hard water.
• Types and causes of hardness.

4. Atomic Structure and Chemical bonding

(i) Structure of an Atom, mass number and atomic number, Isotopes and Octet Rule.

• Definition of an atom
• Constituents of an atom - nucleus (protons, neutrons) with associated electrons; mass number, atomic number.
• Electron distribution in the orbits - \(2n^2\) rule, Octet rule. Reason for chemical activity of an atom.
• Definition and examples of isotopes (hydrogen, carbon, chlorine).

(ii) Electrovalent and covalent bonding, structures of various compounds – orbit structure

(a) Electrovalent Bond

• Definition
• Atomic orbit structure for the formation of Electrovalent compounds (e.g. NaCl, MgCl\(_2\), CaO);

(b) Covalent Bond

• Definition
• Atomic orbit structure for the formation of Covalent molecules on the basis of duplet and octet of electrons (examples: hydrogen, chlorine, oxygen, nitrogen, hydrogen chloride, water, ammonia, carbon tetrachloride, methane.)

5. The Periodic Table

Dobereiner’s Triads, Newland’s law of Octaves, Mendeleev’s contributions; Modern Periodic Law, the Modern Periodic Table. (Groups and periods)

• General idea of Dobereiner’s triads, Newland’s law of Octaves, Mendeleev’s periodic law.
• Discovery of Atomic Number and its use as a basis for Modern Periodic law.
• Modern Periodic Table (Groups 1 to 18 and periods 1 to 7).
• Special reference to Alkali metals (Group 1), Alkaline Earth metals (Group 2) Halogens (Group 17) and Zero Group (Group 18).


Position of the non-metal (Hydrogen) in the periodic table and general group characteristics with reference to valency electrons, burning, ion formation applied to the above mentioned element.

(i) Hydrogen from: water, dilute acids and alkalis.

(a) Hydrogen from water:

• The action of cold water on sodium potassium and calcium.
• The action of hot water on magnesium.
• The action of steam on aluminium, zinc, and iron; (reversibility of reaction between iron and steam).
• The action of steam on non-metal (carbon).

Students can be shown the action of sodium and calcium on water in the laboratory. They must be asked to make observations and write equations for the above reactions.

Application of activity series for the above mentioned reactions.

(b) Displacement of hydrogen from dilute acids:
The action of dilute sulphuric acid or hydrochloric acid on metals: Mg, Al, Zn and Fe

(To understand reasons for not using other metals and dilute nitric acid)

(c) Displacement of hydrogen from alkalis:
The action of Alkalis ((NaOH, KOH) on Al, Zn and Pb – unique nature of these elements.

(ii) The preparation and collection of hydrogen by a standard laboratory method other than electrolysis.

In the laboratory preparation, the reason for using zinc, the impurities in the gas, their removal and the precautions in the collection of the gas must be mentioned.

(iii) Industrial manufacture of hydrogen by Bosch process:
• Main reactions and conditions.
• Separation of CO₂ and CO from hydrogen.

(iv) Oxidation and reduction reactions

Differences in terms of addition and removal of oxygen / hydrogen.

7. Study of Gas Laws

(i) The behaviour of gases under changes of temperature and pressure; explanation in terms of molecular motion (particles, atoms, molecules); Boyle’s Law and Charles’ Law; absolute zero; gas equation; simple relevant calculations.

(ii) Relationship between Kelvin scale and Celsius Scale of temperature; Standard temperature and pressure. Conversion of temperature from Celsius Scale to Kelvin scale and vice versa. (Simple calculations).

8. Atmospheric pollution

(a) Acid rain – composition, cause and its impact.

Sulphur in fossil fuels giving oxides of sulphur when burnt. High temperatures in furnaces and internal combustion engines produce oxides of nitrogen. (Equations to be included). Acid rain affects soil chemistry and water bodies.

(b) Global warming:

Greenhouse gases – their sources and ways of reducing their presence in the atmosphere.

(Water vapour, carbon dioxide, methane and oxides of nitrogen)

(c) Ozone depletion

• Formation of ozone – relevant equations
• Function in the atmosphere.
• Destruction of the ozone layer – chemicals responsible for this to be named but reactions not required.
INTERNAL ASSESSMENT OF PRACTICAL WORK

Candidates will be asked to observe the effect of reagents and/or of heat on substances supplied to them. The exercises will be simple and may include the recognition and identification of certain gases listed below.


Candidates are expected to have completed the following minimum practical work.

Simple experiments on:

1. Action of heat on the following compounds:
   (a) copper carbonate, zinc carbonate
   (b) washing soda, copper sulphate crystals
   (c) zinc nitrate, copper nitrate, lead nitrate
   (d) ammonium chloride, iodine, ammonium dichromate

   Make observations, identify the products and make deductions where possible.

2. Action of dilute sulphuric acid on the following substances. (warm if necessary)
   (a) a metal
   (b) a carbonate
   (c) a sulphide
   (d) a sulphite

   Make observations, identify the gas evolved and make deductions

3. Apply the flame test to identify the metal in the unknown substance.
   (a) a sodium salt
   (b) a potassium salt
   (c) a calcium compound


5. Find out the sources of pollution of water bodies in the locality. Suggest preventive steps to control it.
There will be one paper of two hours’ duration of 80 marks and Internal Assessment of practical work carrying 20 marks.

The paper will be divided into two sections, Section I (40 marks) and Section II (40 marks).

Section I (compulsory) will contain short answer questions on the entire syllabus.

Section II will contain six questions. Candidates will be required to answer any four of these six questions.

Note: All chemical processes/reactions should be studied with reference to the reactants, products, conditions, observation, the (balanced) equations and diagrams.

   (i) Periodic properties and their variations in groups and periods.

   Definitions and trends of the following periodic properties in groups and periods should be studied:
   - atomic size
   - metallic character
   - non-metallic character
   - ionisation potential
   - electron affinity
   - electronegativity

   (ii) Periodicity on the basis of atomic number for elements.

   - The study of modern periodic table up to period 3 (students to be exposed to the complete modern periodic table but no questions will be asked on elements beyond period 3 – Argon);
   - Periodicity and other related properties to be explained on the basis of nuclear charge and shells (not orbitals).

   (Special reference to the alkali metals and halogen groups).

2. Chemical Bonding

   Electrovalent, covalent and co-ordinate bonding, structures of various compounds, Electron dot structure.

   (a) Electrovalent bonding:
   - Electron dot structure of Electrovalent compounds NaCl, MgCl₂, CaO.
   - Characteristic properties of electrovalent compounds – state of existence, melting and boiling points, conductivity (heat and electricity), dissociation in solution and in molten state to be linked with electrolysis.

   (b) Covalent Bonding:
   - Electron dot structure of covalent molecules on the basis of duplet and octet of electrons (example: hydrogen, chlorine, nitrogen, ammonia, carbon tetrachloride, methane.
   - Polar Covalent compounds – based on difference in electronegativity:
     Examples – HCl and H₂O including structures.
   - Characteristic properties of Covalent compounds – state of existence, melting and boiling points, conductivity (heat and electricity), ionisation in solution.

   Comparison of Electrovalent and Covalent compounds.

   (c) Coordinate Bonding:
   - Definition
   - The lone pair effect of the oxygen atom of the water molecule and the nitrogen atom of the ammonia molecule to explain the formation of H₃O⁺ and OH⁻ ions in water and NH₄⁺ ion.
The meaning of lone pair; the formation of hydronium ion and ammonium ion must be explained with help of electron dot diagrams.

3. Study of Acids, Bases and Salts
   (i) Simple definitions in terms of the molecules and their characteristic properties.
   (ii) Ions present in mineral acids, alkalis and salts and their solutions; use of litmus and pH paper to test for acidity and alkalinity.
       • Examples with equation for the ionisation/dissociation of ions of acids, bases and salts.
       • Acids form hydronium ions (only positive ions) which turn blue litmus red, alkalis form hydroxyl ions (only negative ions) with water which turns red litmus blue.
       • Salts are formed by partial or complete replacement of the hydrogen ion of an acid by a metal. (To be explained with suitable examples).
       • Introduction to pH scale to test for acidity, neutrality and alkalinity by using pH paper or Universal indicator.
   (iii) Definition of salt; types of salts.
       Types of salts: normal salts, acid salt, basic salt, definition and examples.
   (iv) Action of dilute acids on salts.
       Decomposition of hydrogen carbonates, carbonates, sulphites and sulphides by appropriate acids with heating if necessary. (Relevant laboratory work must be done).
   (v) Methods of preparation of Normal salts with relevant equations. (Details of apparatus or procedures not required).
       Methods included are:
       • Direct combination
       • Displacement
       • Precipitation (double decomposition)
       • Neutralization of insoluble base
       • Neutralisation of an alkali (titration)

4. Analytical Chemistry
   (i) Action of Ammonium Hydroxide and Sodium Hydroxide on solution of salts: colour of salt and its solution; formation and colour of hydroxide precipitated for solutions of salts of Ca, Fe, Cu, Zn and Pb; special action of ammonium hydroxide on solutions of copper salt and sodium hydroxide on ammonium salts.
       On solution of salts:
       • Colour of salt and its solution.
       • Action on addition of Sodium Hydroxide to solution of Ca, Fe, Cu, Zn, and Pb salts drop by drop in excess. Formation and colour of hydroxide precipitated to be highlighted with the help of equations.
       • Action on addition of Ammonium Hydroxide to solution of Ca, Fe, Cu, Zn, and Pb salts drop by drop in excess. Formation and colour of hydroxide precipitated to be highlighted with the help of equations.
       • Special action of Ammonium Hydroxide on solutions of copper salts and sodium hydroxide on ammonium salts.
   (ii) Action of alkalis (NaOH, KOH) on certain metals, their oxides and hydroxides.
       The metals must include aluminium, zinc and lead, their oxides and hydroxides, which react with caustic alkalis (NaOH, KOH), showing the amphoteric nature of these substances.

5. Mole Concept and Stoichiometry
   (i) Gay Lussac’s Law of Combining Volumes; Avogadro’s Law.
       • Idea of mole – a number just as a dozen, a gross (Avogadro’s number).
• Avogadro’s Law - statement and explanation.
• Gay Lussac’s Law of Combining Volumes. – Statement and explanation.
• Understanding molar volume- “the mass of 22.4 litres of any gas at S.T.P. is equal to its molar mass”. (Questions will not be set on formal proof but may be taught for clear understanding).
• Simple calculations based on the molar volume and Gay Lussac’s law.

(ii) Refer to the atomicity of hydrogen, oxygen, nitrogen and chlorine (proof not required).

The explanation can be given using equations for the formation of HCl, NH₃, and NO.

(iii) Vapour Density and its relation to relative molecular mass:
• Molecular mass = 2 × vapour density (formal proof not required)
• Deduction of simple (empirical) and molecular formula from:
  (a) the percentage composition of a compound.
  (b) the masses of combining elements.

(iv) Mole and its relation to mass.
• Relating mole and atomic mass; arriving at gram atomic mass and then gram atom; atomic mass is a number dealing with one atom; gram atomic mass is the mass of one mole of atoms.
• Relating mole and molecular mass arriving at gram molecular mass and gram molecule – molecular mass is a number dealing with a molecule, gram molecular mass is the mass of one mole of molecules.
• Simple calculations based on relation of mole to mass, volume and Avogadro’s number.

(v) Simple calculations based on chemical equations Related to weight and/or volumes of both reactants and products.

6. Electrolysis

(i) Electrolytes and non-electrolytes.

Definitions and examples.

(ii) Substances containing molecules only, ions only, both molecules and ions.
• Substances containing molecules only ions only, both molecules and ions.
• Examples; relating their composition with their behaviour as strong and weak electrolytes as well as non-electrolytes.

(iii) Definition and explanation of electrolysis, electrolyte, electrode, anode, cathode, anion, cation, oxidation and reduction (on the basis of loss and gain of electrons).

(iv) An elementary study of the migration of ions, with reference to the factors influencing selective discharge of ions (reference should be made to the activity series as indicating the tendency of metals, e.g. Na, Mg, Fe, Cu, to form ions) illustrated by the electrolysis of:
• Molten lead bromide
• Acidified water with platinum electrodes
• Aqueous copper (II) sulphate with copper electrodes; electron transfer at the electrodes.

The above electrolytic processes can be studied in terms of electrolyte used, electrodes used, ionization reaction, anode reaction, cathode reaction, use of selective discharge theory, wherever applicable.

(v) Applications of electrolysis:
• Electroplating with nickel and silver, choice of electrolyte for electroplating.
• Electro refining of copper;

Reasons and conditions for electroplating; names of the electrolytes and the electrodes used should be given. Equations for the reactions at the electrodes should be given for electroplating, refining of copper.
7. Metallurgy

(i) Occurrence of metals in nature:
- Mineral and ore - Meaning only.
- Common ores of iron, aluminium and zinc.

(ii) Stages involved in the extraction of metals:
(a) Dressing of the ore – hydrolytic method, magnetic separation, froth flotation method.
(b) Conversion of concentrated ore to its oxide- roasting and calcination (definition, examples with equations).
(c) Reduction of metallic oxides- some can be reduced by hydrogen, carbon and carbon monoxide (e.g. copper oxide, lead (II) oxide, iron (III) oxide and zinc oxide) and some cannot (e.g. Al₂O₃, MgO - refer to activity series). Active metals by electrolysis e.g. sodium, potassium and calcium. (reference only).
Equations with conditions should be given.
(d) Electro refining – reference only

(iii) Extraction of Aluminium.
(a) Chemical method for purifying bauxite by using NaOH – Baeyer’s Process.
(b) Electrolytic extraction – Hall Heroult’s process:
Structure of electrolytic cell - the various components as part of the electrolyte, electrodes and electrode reactions.
Description of the changes occurring, purpose of the substances used and the main reactions with their equations.

(iv) Alloys – composition and uses
Stainless steel, duralumin, brass, bronze, fuse metal / solder.

8. Study of Compounds

A. Hydrogen Chloride
Hydrogen chloride: preparation of hydrogen chloride from sodium chloride; refer to the density and solubility of hydrogen chloride (fountain experiment); reaction with ammonia; acidic properties of its solution.
- Preparation of hydrogen chloride from sodium chloride; the laboratory method of preparation can be learnt in terms of reactants, product, condition, equation, diagram or setting of the apparatus, procedure, observation, precaution, collection of the gas and identification.
- Simple experiment to show the density of the gas (Hydrogen Chloride) –heavier than air.
- Solubility of hydrogen chloride (fountain experiment); setting of the apparatus, procedure, observation, inference.
- Method of preparation of hydrochloric acid by dissolving the gas in water- the special arrangement and the mechanism by which the back suction is avoided should be learnt.
- Reaction with ammonia
- Acidic properties of its solution - reaction with metals, their oxides, hydroxides and carbonates to give their chlorides; decomposition of carbonates, hydrogen carbonates, sulphides, sulphites.
- Precipitation reactions with silver nitrate solution and lead nitrate solution.

B. Ammonia
Ammonia: its laboratory preparation from ammonium chloride and collection; ammonia from nitrides like Mg₃N₂ and AlN and ammonium salts. Manufacture by Haber’s Process; density and solubility of ammonia (fountain experiment); aqueous solution of ammonia; its reactions with hydrogen chloride and with hot copper (II) oxide
and chlorine; the burning of-ammonia in oxygen; uses of ammonia.

- Laboratory preparation from ammonium chloride and collection; (the preparation to be studied in terms of; setting of the apparatus and diagram, procedure, observation, collection and identification)
- Ammonia from nitrides like $\text{Mg}_3\text{N}_2$ and $\text{AlN}$ using warm water. Ammonia from ammonium salts using alkalies.

The reactions to be studied in terms of reactants, products, conditions and equations.

- Manufacture by Haber’s Process.
- Density and solubility of ammonia (fountain experiment).
- The burning of ammonia in oxygen.
- The catalytic oxidation of ammonia (with conditions and reaction)
- Its reactions with hydrogen chloride and with hot copper (II) oxide and chlorine (both chlorine in excess and ammonia in excess).

All these reactions may be studied in terms of reactants, products, conditions, equations and observations.

- Aqueous solution of ammonia - reaction with sulphuric acid, nitric acid, hydrochloric acid and solutions of iron(III) chloride, iron(II) sulphate, lead nitrate, zinc nitrate and copper sulphate.
- Uses of ammonia - manufacture of fertilizers, explosives, nitric acid, refrigerant gas (Chlorofluoro carbon – and its suitable alternatives which are non-ozone depleting), and cleansing agents.

C. Nitric Acid

Nitric Acid: one laboratory method of preparation of nitric acid from potassium nitrate or sodium nitrate. Large scale preparation. Nitric acid as an oxidizing agent.

- Laboratory preparation of nitric acid from potassium nitrate or sodium nitrate; the laboratory method to be studied in terms of reactants, products, conditions, equations, setting up of apparatus, diagram, precautions, collection and identification.
- Manufacture of Nitric acid by Ostwald’s process (Only equations with conditions where applicable).
- As an oxidising agent: its reaction with copper, carbon, sulphur.

D. Sulphuric Acid

Large scale preparation, its behaviour as an acid when dilute, as an oxidizing agent when concentrated - oxidation of carbon and sulphur; as a dehydrating agent - dehydration of sugar and copper (II) sulphate crystals; its non-volatile nature.

- Manufacture by Contact Process Equations with conditions where applicable).
- Its behaviour as an acid when dilute - reaction with metal, metal oxide, metal hydroxide, metal carbonate, metal bicarbonate, metal sulphite, metal sulphide.
- Concentrated sulphuric acid as an oxidizing agent - the oxidation of carbon and sulphur.
- Concentrated sulphuric acid as a dehydrating agent- (a) the dehydration of sugar (b) Copper (II) sulphate crystals.
- Non-volatile nature of sulphuric acid - reaction with sodium or potassium chloride and sodium or potassium nitrate.

9. Organic Chemistry

(i) Introduction to Organic compounds.

- Unique nature of Carbon atom – tetra valency, catenation.
- Formation of single, double and triple bonds, straight chain, branched chain, cyclic compounds (only benzene).

(ii) Structure and Isomerism.
- Structure of compounds with single, double and triple bonds.
- Structural formulae of hydrocarbons. Structural formula must be given for: alkanes, alkenes, alkynes up to 5 carbon atoms.
- Isomerism – structural (chain, position)

(iii) Homologous series – characteristics with examples.
Alkane, alkene, alkyne series and their gradation in properties and the relationship with the molecular mass or molecular formula.

(iv) Simple nomenclature.
Simple nomenclature - of the hydrocarbons with simple functional groups – (double bond, triple bond, alcoholic, aldehydic, carboxylic group) longest chain rule and smallest number for functional groups rule – trivial and IUPAC names (compounds with only one functional group)

(v) Hydrocarbons: alkanes, alkenes, alkynes.
- Alkanes - general formula; methane (greenhouse gas) and ethane - methods of preparation from sodium ethanoate (sodium acetate), sodium propanoate (sodium propionate), from iodomethane (methyl iodide) and bromoethane (ethyl bromide). Complete combustion of methane and ethane, reaction of methane and ethane with chlorine through substitution.
- Alkenes – (unsaturated hydrocarbons with a double bond); ethene as an example. Methods of preparation of ethene by dehydro halogenation reaction and dehydration reactions.
- Alkynes -(unsaturated hydrocarbons with a triple bond); ethyne as an example of alkyne; Methods of preparation from calcium carbide and 1,2 dibromoethane ethylene dibromide.

Only main properties, particularly addition products with hydrogen and halogen namely Cl₂, Br₂ and I₂ pertaining to alkenes and alkynes.

- Uses of methane, ethane, ethene, ethyne.

(vi) Alcohols: ethanol – preparation, properties and uses.
- Preparation of ethanol by hydrolysis of alkyl halide.
- Denatured and spurious alcohol.
- Important uses of Ethanol.

(vii) Carboxylic acids (aliphatic - mono carboxylic acid): Acetic acid – properties and uses of acetic acid.
- Structure of acetic acid.
- Properties of Acetic Acid: Physical properties – odour (vinegar), glacial acetic acid (effect of sufficient cooling to produce ice like crystals). Chemical properties – action with litmus, alkalis and alcohol (idea of esterification).
- Uses of acetic acid.

INTERNAL ASSESSMENT OF PRACTICAL WORK
Candidates will be asked to observe the effect of reagents and/or of heat on substances supplied to them. The exercises will be simple and may include the recognition and identification of certain gases and ions listed below. The examiners will not, however, be restricted in their choice to substances containing the listed ions.


Ions: Calcium, Copper, Iron, Lead, Zinc and Ammonium, Carbonate, Chloride, Nitrate, Sulphide, Sulphite and Sulphate.
Knowledge of a formal scheme of analysis is not required. Semi-micro techniques are acceptable but candidates using such techniques may need to adapt the instructions given to suit the size of the apparatus being used.

Candidates are expected to have completed the following minimum practical work:

1. Action of heat on the following substances:
   (a) Copper carbonate, zinc carbonate
   (b) zinc nitrate, copper nitrate, lead nitrate
   Make observations, identify the products and make deductions where possible. (equations not required)

2. Make a solution of the unknown substance: add sodium hydroxide solution or ammonium hydroxide solution, make observations and give your deduction. Warming the mixture may be needed. Choose from substances containing Ca²⁺, Cu²⁺, Fe²⁺, Fe³⁺, Pb²⁺, Zn²⁺, NH₄⁺.

3. Supply a solution of a dilute acid and alkali. Determine which is acidic and which is basic, giving two tests for each.

4. Add concentrated hydrochloric acid to each of the given substances, warm, make observations, identify any product and make deductions: (a) copper oxide (b) manganese dioxide.

**EVALUATION**

The assignments/project work are to be evaluated by the subject teacher and by an External Examiner. (The External Examiner may be a teacher nominated by the Head of the school, who could be from the faculty, **but not teaching the subject in the section/class.** For example, a teacher of Chemistry of Class VIII may be deputed to be an External Examiner for Class X Chemistry projects.)

The Internal Examiner and the External Examiner will assess the assignments independently.

**Award of marks (20 Marks)**

<table>
<thead>
<tr>
<th></th>
<th>Subject Teacher (Internal Examiner)</th>
<th>10 marks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>External Examiner</td>
<td>10 marks</td>
</tr>
</tbody>
</table>

The total marks obtained out of 20 are to be sent to the Council by the Head of the school.

The Head of the school will be responsible for the entry of marks on the mark sheets provided by the Council.

**NOTE:** According to the recommendation of International Union of Pure and Applied Chemistry (IUPAC), the groups are numbered from 1 to 18 replacing the older notation of groups IA …. VIIA, VIII, IB …… VIIB and 0. However, for the examination both notations will be accepted.

<table>
<thead>
<tr>
<th>Old notation</th>
<th>IA</th>
<th>IIA</th>
<th>IIIB</th>
<th>IVB</th>
<th>VB</th>
<th>VIB</th>
<th>VIIB</th>
<th>VIII</th>
<th>IB</th>
<th>IIB</th>
<th>IIIA</th>
<th>IVA</th>
<th>VA</th>
<th>VIA</th>
<th>VIIA</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>New notation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
</tr>
</tbody>
</table>
CLASSICAL LANGUAGE (76)

(Candidates offering Sanskrit as a Group I subject may not opt for Sanskrit as a Group II subject.) Papers will be set in Sanskrit and other Classical Languages on request.

SANSKRIT

CLASSES IX & X

There will be one paper of two hours duration carrying 80 marks and Internal Assessment of 20 marks.

The paper will consist of the following tests:

(a) Question on elementary Sanskrit grammar.
(b) Unprepared translation from English into Sanskrit consisting of short prose sentences.
(c) Unprepared translation from Sanskrit into English.

INTERNAL ASSESSMENT

The minimum number of assignments for each academic year

Class IX: Two or three assignments of reasonable length/duration.
Class X: Two or three assignments of reasonable length/duration.

Suggested Assignments

Class IX - Creative Writing: Students are to write short compositions the stimuli being; i) a piece of recorded music; ii) a recorded series of sound; iii) a picture/photograph; iv) an opening sentence or phrase; v) a newspaper/magazine clipping or report; one piece of factual writing which should be informative or argumentative; one piece of expressive writing which is descriptive and imaginative; preparation of the film/book review.

Class X - Oral: Prepared speech/ declamation; impromptu speech/ debate/ discussion; report/ interview; elocution; role play/ general conversation on selected topics.

Aural: Listening to a conversation/ talk/ reading of a short passage and then writing down the relevant or main points in the specified number of words and answering the given questions.

EVALUATION

The assignments/project work are to be evaluated by the subject teacher and by an External Examiner. (The External Examiner may be a teacher nominated by the Head of the school, who could be from the faculty, but not teaching the subject in the section/class. For example, a teacher of Language of Class VIII may be deputed to be an External Examiner for Class X, Language projects.)

The Internal Examiner and the External Examiner will assess the assignments independently.

Award of marks (20 Marks)

Subject Teacher (Internal Examiner) 10 marks
External Examiner 10 marks

The total marks obtained out of 20 are to be sent to the Council by the Head of the school.

The Head of the school will be responsible for the entry of marks on the mark sheets provided by the Council.
## INTERNAL ASSESSMENT IN SANSKRIT - GUIDELINES FOR MARKING WITH GRADES
### CREATIVE WRITING (CLASS IX)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Content/Analysis of Idea, Thought/Feeling.</th>
<th>Expression/Effective Expression of Idea</th>
<th>Structure/ Organisation of Material</th>
<th>Vocabulary/ Use of Words, Phrases</th>
<th>Originality/Imaginative/Innovative</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>The candidate analyses the ideas, feelings and experiences effectively. Reasoning is logical and effective.</td>
<td>The candidate expresses the ideas, thoughts and feelings effectively.</td>
<td>The work is very well structured with a sense of beginning, middle and conclusion, paragraphing and appropriate sentence structures.</td>
<td>The use of vocabulary exhibits a high level of competence in handling language.</td>
<td>The work is imaginative interesting and engrossing.</td>
<td>4</td>
</tr>
<tr>
<td>II</td>
<td>The candidate analyses the ideas, feelings and experiences with well defined explanations, reasoning is logical and persuasive.</td>
<td>The candidate expresses the ideas, thoughts and feelings well and with clarity.</td>
<td>The work is very well structured with some sense of conclusion and of paragraph lengths.</td>
<td>The vocabulary exhibits competence of word usage; correctness of grammar and spelling.</td>
<td>The candidate's work is quite interesting and engrossing.</td>
<td>3</td>
</tr>
<tr>
<td>III</td>
<td>The candidate analyses the idea, feelings and experiences with a fair degree of detail and explanation. Reasoning is fairly logical and persuasive.</td>
<td>The candidate expresses the ideas, thoughts and feelings fairly well and with a fair degree of clarity.</td>
<td>The work is fairly well structured; Candidate follows simple paragraphing.</td>
<td>The candidate uses straightforward vocabulary and fairly good pattern of spellings.</td>
<td>The candidate demonstrates the ability to sustain the interest of the reader.</td>
<td>2</td>
</tr>
<tr>
<td>IV</td>
<td>The candidate attempts to analyze ideas, feelings and experiences with simple explanation and detail. Reasoning and arguments are not very convincing.</td>
<td>The candidate expresses the idea, thoughts and feelings intelligibly and in simple language.</td>
<td>The work shows some understanding of paragraphing and structure.</td>
<td>The candidate's vocabulary is limited and the spelling, punctuation and grammar is sometimes poor.</td>
<td>The candidate is, to some extent, able to sustain the interest of the reader.</td>
<td>1</td>
</tr>
<tr>
<td>V</td>
<td>The candidate attempts a basic analysis of ideas, feelings and experiences with few simple explanations and few details. Is unable to present proper arguments.</td>
<td>The candidate is unable to expresses the ideas, thoughts and feelings, uses simple language and work is not very intelligible.</td>
<td>The candidate does not display an understanding of structure, paragraphing.</td>
<td>There is consistent weakness in spelling, punctuation and grammar.</td>
<td>The candidate is unable to sustain the interest of the reader.</td>
<td>0</td>
</tr>
</tbody>
</table>
# INTERNAL ASSESSMENT IN SANSKRIT - GUIDELINES FOR MARKING WITH GRADES (CLASS X)
## ORAL ASSIGNMENT

<table>
<thead>
<tr>
<th>Grade</th>
<th>Fluency of Language</th>
<th>Subject Matter</th>
<th>Organization</th>
<th>Vocabulary/Delivery</th>
<th>Understanding</th>
<th>Gesture</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Speaks with fluency and has full operational command over the language.</td>
<td>Matter is relevant, rich in content and original.</td>
<td>Content is well sequenced and well organized.</td>
<td>Uses appropriate vocabulary and pronounces words correctly.</td>
<td>While speaking, the candidate emphasizes the important points.</td>
<td>Uses natural and spontaneous gestures that are not out of place.</td>
<td>3</td>
</tr>
<tr>
<td>II</td>
<td>The candidate speaks with fairly good fluency and has reasonable operational command of the language.</td>
<td>The subject matter is mostly relevant, consisting of a few original ideas.</td>
<td>The content is satisfactorily sequenced and well organized.</td>
<td>The candidate pronounces most words correctly and uses simple vocabulary.</td>
<td>While speaking the candidate emphasizes most important points.</td>
<td>Uses some natural gestures.</td>
<td>2</td>
</tr>
<tr>
<td>III</td>
<td>The candidate speaks with poor fluency and does not communicate except for the most basic information.</td>
<td>The subject matter is irrelevant and lacks originality.</td>
<td>The subject content is very poor and lacks organisational structure.</td>
<td>The candidate pronounces many words incorrectly and uses inappropriate vocabulary.</td>
<td>While speaking, the candidate emphasizes some important points.</td>
<td>Uses very few natural gestures.</td>
<td>1</td>
</tr>
<tr>
<td>IV</td>
<td>The candidate cannot communicate even the most basic information.</td>
<td>The subject matter is negligible.</td>
<td>The subject content comprises of mere words with no structured sentences.</td>
<td>The candidate is unable to correctly pronounce most words and has a limited vocabulary.</td>
<td>While speaking, the candidate is unable to emphasize important points.</td>
<td>Uses no natural gestures.</td>
<td>0</td>
</tr>
</tbody>
</table>
**INTERNAL ASSESSMENT IN SANSKRIT - GUIDELINES FOR MARKING WITH GRADES (CLASS X)**

**AURAL ASSIGNMENT**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Understanding/ Comprehension Main Idea, Central Theme</th>
<th>Recall</th>
<th>Vocabulary</th>
<th>Context/ Correlation to Other Areas</th>
<th>Marka</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>The candidate accurately understands the central idea of the passage as well as the relevant points in the selected passage/talk.</td>
<td>The candidate recalls all the important points made (written/verbal).</td>
<td>The candidate uses appropriate and correct vocabulary while recalling the points made.</td>
<td>The candidate clearly understands the context and can widely correlate the passage to the other areas.</td>
<td>3</td>
</tr>
<tr>
<td>II</td>
<td>The candidate gives ideas fairly close to the central/main idea of the passage as well as understand some of the relevant points heard in the selected passage/talk.</td>
<td>The candidate recalls some of the important points made (written/verbal).</td>
<td>The candidate uses correct but simple vocabulary while recalling the points made.</td>
<td>The candidate can moderately understand the context of the passage and can moderately correlate the passage to the other areas.</td>
<td>2</td>
</tr>
<tr>
<td>III</td>
<td>The candidate cannot fully comprehend the passage and gives only a few ideas related to the central theme of the passage.</td>
<td>The candidate recalls very few of the important points made (written/verbal).</td>
<td>The candidate makes various errors in vocabulary while recalling the points made.</td>
<td>The candidate can only faintly understand the context of the passage and relate it to the other areas.</td>
<td>1</td>
</tr>
<tr>
<td>IV</td>
<td>The candidate is neither able to understand the central/main idea of the passage; nor able to understand relevant points heard in the passage/talk.</td>
<td>The candidate is unable to recall the important points made (written/verbal)</td>
<td>The candidate uses incorrect vocabulary while recalling the points made.</td>
<td>The candidate is unable to understand the context of the passage and is unable to correlate the passage to the other areas.</td>
<td>0</td>
</tr>
</tbody>
</table>
COMMERCIAL APPLICATIONS (88)

Aims:

1. To develop in students a perceptive, sensitive and critical response to the role of business in a simple manner.
2. To develop in students an analytical ability so as to balance the demands of social and business parameters with individual aspirations.
3. To help create an appreciation for the diverse roles of both the entrepreneur and the professional manager.
4. To develop an ability to work in and through teams.
5. To provide appropriate knowledge and skills as a basis for further study or work or both.

CLASS IX

There will be one written paper of two hours duration carrying 100 marks and Internal Assessment of 100 marks.

The paper will be divided into two sections A and B.

Section A (Compulsory) will consist of compulsory short answer questions covering the entire syllabus.

Section B will consist of questions which will require detailed answers and there will be a choice of questions in this section.

THEORY-100 Marks

1. Introduction to Commercial Organisations
   
   (a) Definition and basic understanding of terms like commerce, business, industry, trade, organization, firm and company. Meaning of commercial organisations.
   
   A basic understanding of the terms and their distinctions using relevant industry examples.
   
   (b) Classification according to activities, objectives and ownership structures.
   
   Different industrial groupings need to be explained like: Textile industry, FMCG (fast moving consumer goods), etc. Many examples need to be given to reinforce and clarify these concepts. While the objectives for profit and non-profit organizations are different, good management is still essential. A brief introduction to each ownership structure, their features and distinctions.
   
   (c) Environmental awareness:
   
   (i) Natural resources – air, water, soil, metals, minerals, forests and fuels.

   Importance of these resources in our daily life.

   (ii) Causes of depletion of resources - overuse/irrational use, non-equitable distribution of resources, technological and industrial development, and population growth.

   Almost all activities of human society have degraded the environment physically, chemically, biologically and ethically.

   Technological inputs have yielded high yielding varieties, which reduces the products of agricultural residue such as fodder, etc.; indiscriminate use of fertilizers and pesticides. Mining, industries, energy generation, automobiles, urbanisation leading to defacement of land, deforestation, deterioration of hydrological resources.

   (iii) Practices for conservation of resources - search for alternatives, promotion of renewable resources.

   Advantages and disadvantages of renewable resources when compared to nonrenewable resources. Study of the functioning of biogas, solar, wind and hydro power.

   (iv) Industrial pollution and degradation of environment.

   Measures to control pollution and degradation. Need for an Eco friendly form of industrial development.
(d) Sources of Pollution

Vehicular, industrial, burning garbage, brick kilns, industrial waste, off shore oil drilling, thermal pollution, chemical fertilizer, biomedical waste, pesticides, radiation – x-rays, radioactive fallout from nuclear plants.

2. An understanding of the actual functioning of a Commercial Organisation

To understand the specific roles played by different departments of a commercial organization and to study the inter-relationships and dependence of all the functional areas in an actual firm: Purchase and Stores, Production, Marketing and Sales, Finance, Human Resources, General Administration and Legal.

These topics should be studied as departments in a typical firm only, through case-studies or projects. All the departments and their functions need to be explained individually so that the cross-linkages can be brought out clearly.

3. Business Communication

(a) Increasing relevance of communication in a commercial organization.

With changing times and increasing size of organizations the ever increasing need and relevance of communication.

(b) Ways of Communicating: verbal (written, spoken) and non-verbal communication. Their importance in different settings and their disadvantages.

The advantages and disadvantages of each method. Using industry examples and real-life settings, see the relevance of each method.

(c) Skills required for effective communication.

The interpersonal skills required for effective communication.

(d) Understanding the relevance and use of different tools of communication: letter, facsimile, e-mail, video conference, memo, telephonic conversation, etc.

A comparative analysis of the tools needs to be undertaken.

4. Mechanics and Terminology of Accounting Systems

(a) Need and relevance of accounting.

(b) Basic understanding of debit and credit.

(c) Understanding of basic accounting terminology: capital, liability, asset, revenue, expense, purchase, sales, stocks, debtors, creditors.

(d) Simple understanding of some accounting records maintained such as journals, ledgers, cashbook, and trial balance.

Self-explanatory.

No questions will be set on recording of entries or on calculations - only an understanding of the above is required.

INTERNAL ASSESSMENT- 100 Marks

A minimum of four assignments to be completed during the year, as assigned by the teacher.

Suggested list of assignments

1. Study the growth of the Consumer Durables Industry in India - take any 4 firms of the industry and group them according to ownership structures.

2. Study the working of Fast Moving Consumer Goods (FMCG) Industry in India - take any 4 firms of the industry and group them according to their Objectives (Profit/ Non-profit making).

3. Make a comparative study of different core industries in India - take any 5 industries (such as - cement, steel, paints, paper, and infrastructure) and group them according to various factors such as - growth, profit potential, etc.

4. Study any existing functional strategy for a small/medium/large scale organization w.r.t. it’s Marketing, Finance, HR, Production, purchase and find the problems in the existing strategies.

5. Enact a play showing growing communication needs in today's organizations, depicting the possible problems that may occur due to poor communication.
6. Critically evaluate the ways (verbal and non-verbal) of business communication in a commercial organization. Write the factors which make one or the other method appropriate based on your understanding of commercial organizations.

7. Critically evaluate the tools (letters, e-mail, video-conference, memo, and phone) of business communication in a commercial organization. Visit any commercial organization to understand the working and importance of each of these tools.

8. Write an essay/play about two organizations (one which uses communication effectively and one which does not) and show how this has an effect on their total working and profitability.

9. Study the accounting books maintained by a manufacturing concern and prepare a report highlighting the way in which they are maintained.

10. Study the balance sheet of a listed company. Define basic accounting terminologies, such as, capital, liabilities, assets, (fixed and current), revenue, expenditure, etc.
CLASS X

There will be one written paper of two hours duration carrying 100 marks and Internal Assessment of 100 marks.

The paper will be divided into two sections A and B.
Section A (Compulsory) will consist of compulsory short answer questions covering the entire syllabus.
Section B will consist of questions which will require detailed answers. There will be a choice of questions in this section.

THEORY- 100 Marks

1. Understanding the basics of Markets and Marketing
   (a) Definition of markets and marketing – with examples from consumer goods, consumer services.
      A clear understanding of markets (wherever a buy and sell takes place is a market); examples of non-traditional markets such as catalogues, direct sales, tele-markets, etc. Definition and stages of marketing.
   (b) Difference between a product and a service (with examples).
      With service becoming important, the distinctions between products and services must be clearly understood.
   (c) Understanding 4 ‘P’s– Product, Price, Place and Promotion.
      Product life-cycle, pricing strategies such as skimming, penetration, parity, cost plus, place - distribution channels, promotional strategies, concept of advertising, direct selling, publicity.
   (d) Advertising and brand promotion.
      Definition, concept and types of advertising. Definition of brand, how to bring about brand promotion.
   (e) Sales and the selling process, including the difference between marketing and sales; qualities of a good salesman.
      Self-explanatory.

2. Understanding Finance
   (a) Elementary understanding of Generally Accepted Accounting Principles (GAAP).
      GAAP to be explained - Entity concept, duality concept, matching concept, money-measurement concept, going concern concept.
   (b) Principles of Financial accounting and reporting - a simple understanding of receipt and payment account, income and expenditure account, balance sheet.
      Concept of balance sheet.
   (c) Banking - functions of the Central Bank and commercial banks, types of accounts and banking transactions.
      Function of Commercial Banks and Central Bank.
   (d) Fundamental concept of Cost (direct, variable etc.).
      Classification of cost according to nature (direct and indirect), behaviour (variable, fixed and semi-fixed).

3. Understanding Human Resources
   (a) Importance of Human Resource in a commercial organization.
      Role of human resources in any organization. Functions of human resources.
   (b) Commonly used methods of recruitment, selection and training.
      Definition, types and methods of recruitment, selection and training.

4. Development of Public Relations
   (a) Meaning, nature, scope of Public Relations.
      Self-explanatory.
   (b) Elements of public relations - human relations, empathy, persuasion and dialogue.
      The definition, nature and importance of empathy, persuasion and dialogue.
(c) History of public relations and present status.
   Self-explanatory.

(d) Ethics in public relations.
   Growing role of ethics in business and public relations.

(e) Issues of the Environment
   (i) Destruction of ecosystem due to industrialization, dwelling of business units, transport, tourism and mining.
   (ii) Excessive consumption of minerals, raw materials and other non-renewable resources.
   (iii) Energy crisis: Urban and rural sectors. Renewable and non-renewable energy, greenhouse effect and global warming, acid rain, and
   (iv) Environmental values and ethics.
   Fundamental duties and value education.
   Use of cloth bags, organic manure, clean surroundings, respect for other people’s things, developing an ethical environmental consciousness e.g. refusing use of polybags, styrofoam containers, etc; reusing: plastic and glass containers; recycling: e.g. paper – this will reduce demand on wood and save trees.
   Self-explanatory.

(v) Consumer education - consumer rights, making correct choices while buying different items; food adulteration.
   Understanding the importance of educating consumers of their rights - awareness of food adulteration and its harmful effects.

(vi) Effects of pollution on environment, human, health.
   Bhopal Gas Tragedy; Chernobyl Disaster.

(f) Community participation and public awareness programmes for ecological restoration and conservation like the Chipco Andolan (Movement).

INTERNAL ASSESSMENT-100 Marks

A minimum of four assignments to be completed during the year, as assigned by the teacher.

Suggested list of assignments

1. Design a marketing plan for the launch of a new soap in the price range of Rs.15-20.

2. Make a report on the new forms of markets and marketing such as tele-markets (marketing through phones), home-shopping (catalogues like Burlontons, etc.), Direct Marketing (example Eureka-forbes). What according to you is their relevance in future and why?

3. Study the marketing strategies of a service sector company such as a courier service and a production company such as a pen manufacturer. Explain the differences and similarities in both the strategies. What do you think is the reason for these differences?

4. Study the product life cycle (PLC). Using Add-gel pens, explain in which part of the PLC they are giving valid justification.

5. Study five different advertisements in any one media (print, television, audio) of the FMCG (fast moving consumer goods) such as Coke, Pepsi, Lux, Surf, Tide, etc. and explain their positive and negative points.

6. Study the annual report (balance sheet and profit and loss account) of any company and comment on its financial health.

7. Study the working of the commercial banks in India by studying the working of the branch office of any Public sector commercial bank such as Canara bank, SBI, Bank of Baroda, etc.

8. Write an essay on the role of the Central Bank (Reserve Bank of India) in any economy with special reference to the Indian scenario.

9. Study the human resource policies of an Information Technology firm (developing software or hardware or in IT training).

10. Study the working of the Public relations department of a mid-sized firm operating in the media sector.
EVALUATION

The project work is to be evaluated by the subject teacher and by an External Examiner. The External Examiner shall be nominated by the Head of the school and may be a teacher from the faculty, **but not teaching the subject in the relevant section/class.** For example, a teacher of Commerce of Class XI may be deputed to be the External Examiner for Class X Commercial Applications project work.

The Internal Examiner and the External Examiner will assess the candidate’s work independently.

**Award of marks (100 marks)**
Subject Teacher (Internal Examiner): 50 marks
External Examiner: 50 marks

The total marks obtained out of 100 are to be sent to the Council by the Head of the School.

The Head of the School will be responsible for the entry of marks on the mark sheets provided by the Council.
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Planning</th>
<th>Organisation</th>
<th>Observation</th>
<th>Understanding</th>
<th>Presentation</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade I</td>
<td>The candidate chooses the right model. The collection of information and relevant data is very appropriate.</td>
<td>The candidate does comprehensive reference work. Shows ability to analyze and assemble the material collected.</td>
<td>The candidate can make excellent deductions from the data collected. The deductions thus made are recorded very appropriately.</td>
<td>The candidate shows remarkable ability to comprehend the complexities of various commercial functions. Can analyze the data and construct a suitable model.</td>
<td>Methodical, precise and clarity of expression. Neat and tidy presentation. Optimum utilization of skills.</td>
<td>4 marks for each criterion</td>
</tr>
<tr>
<td>Grade II</td>
<td>The candidate chooses a suitable model. The information and data collected is appropriate.</td>
<td>The candidate does sufficient reference work. Requires guidance to analyze and assemble the material collected.</td>
<td>The candidate makes adequate deductions from data collected. Is able to record the same with clarity.</td>
<td>The candidate displays the ability to understand but cannot fully correlate it with practical applications.</td>
<td>Work - neat and tidy. Presented clearly and methodically. Techniques appropriate.</td>
<td>3 marks for each criterion</td>
</tr>
<tr>
<td>Grade III</td>
<td>The candidate selects an appropriate model but the information and data collected is inadequate.</td>
<td>The candidate displays limited reference work. Poor ability to analyze and assemble the material collected.</td>
<td>The candidate makes deductions with help and guidance. Recording is appropriate.</td>
<td>The candidate shows limited capacity to grasp the intricacies of various commercial functions.</td>
<td>Standard presentation of work but disorganised in places. Writing untidy in places. Reasonably clear.</td>
<td>2 marks for each criterion</td>
</tr>
<tr>
<td>Grade IV</td>
<td>The candidate requires guidance to select a model and gather relevant information pertaining to it.</td>
<td>The candidate has done very little reference work and is unable to organise the material collected.</td>
<td>The candidate has minimum ability to analyze the data collected.</td>
<td>The candidate is able to understand the complexities of various commercial issues with guidance.</td>
<td>Sequence of work acceptable. Not very neat. Presentation poor.</td>
<td>1 mark for each criterion</td>
</tr>
<tr>
<td>Grade V</td>
<td>The candidate is unable to select a model or gather relevant information pertaining to it.</td>
<td>The candidate is unable to do any reference work at all. Information collected is too meagre to do any meaningful assignment.</td>
<td>The candidate is unable to analyze the data collected or make any observations.</td>
<td>The candidate is unable to understand the complexities of various commercial issues even with guidance.</td>
<td>Data presented is untidy and disorganised. Effort and initiative lacking.</td>
<td>0 mark for each criterion</td>
</tr>
</tbody>
</table>
Aims:
1. To enable students to develop a perceptive, sensitive and critical response to the role of business in a global, national and local context.
2. To allow students to balance the demands of social parameters with individual aspirations.
3. To develop in students an appreciation for the roles of the entrepreneur and the professional manager.

CLASS IX

There will be one written paper of two hours duration carrying 80 marks and Internal Assessment of 20 marks.

The paper will be divided into two sections A and B.

Section A (Compulsory) will consist of questions requiring short answers and will cover the entire syllabus.

Section B will consist of questions, which will require detailed answers. There will be a choice and candidates will be required to answer four questions from this section.

1. Commercial Activities
   a. Commercial and Non Commercial Activities – Meaning and difference with examples.
   b. Types of Commercial activities: business, profession and employment – meaning and features.
   c. Business Activities
      Meaning and characteristics. Types of business activities: industry and commerce; classification of industry (primary, secondary and tertiary – meaning and examples of each).
   d. Non-profit Organisations
      Meaning and types (Society, trust, and non-profit companies - Meaning and Examples only).

2. Important departments of a Commercial Organization
   a. Production
   b. Purchasing and Stores
   c. Marketing and Sales

3. To help develop a co-operative attitude through study of the organisation and participation associated with commerce and industry.

4. To provide an appropriate body of knowledge and understanding, and to develop appropriate skills as a basis for further study or work or both.

5. e. Commerce
   Meaning of Commerce and its classification:
   (i) Trade (types of trade: wholesale and retail, domestic and foreign, e-commerce & e-trade - meaning and examples of each).
   (ii) Aids to trade: transport, banking, advertising, insurance, warehousing, packaging – meaning and examples of each.

6. f. Commercial organizations - Classification on the basis of ownership.
   (i) Private Sector enterprise - Sole proprietorship, Partnership, One person company, Joint stock company, Limited liability partnership, Co-operative society (Meaning and features only).
   (ii) Public sector enterprise – Departmental undertaking, public corporation, and government companies (Meaning and features only).
   (iii) Joint Sector Enterprises – Meaning, features only.
d. Finance and Accounting  
e. Human Resources  
f. General Administration, Legal and Compliance  
g. Management Integrated System  
(Meaning and objectives of each of the above).

3. Communication in Commercial Organizations  
Meaning and process; role of communication in a commercial organization; different methods of communication: letter, e-mail, conference calling (audio & video), telephonic conversation, social media – meaning of each.

4. Introduction to Accounting and Book Keeping  
(a) Meaning and objective  
(b) Basic accounting terminology  
Capital, liability, asset, revenue, expense, purchase, sales, stocks, debtors, creditors, drawings, debit and credit, discount (Meaning only).
(c) Basic accounting principles and concepts.  
Business entity, money measurement, going concern, accounting period, dual aspect and accounting equation, matching principle, principle of full disclosure – meaning and examples.
(d) Journal  
Meaning of Journal; and classification of accounts, rules of debit and credit.  
Recording of transactions in journal.  
(Simple numericals based on the terminology mentioned in part (b) need to be covered. Compound journal entries including cash discount, bad debts and opening and closing entries need not be covered).
(e) Ledger  
Meaning, posting and balancing of ledger accounts.  
(Ledger posting on the basis of simple journal entries).
(f) Trial balance  
Meaning, objectives and preparation of trial balance with the given set of ledger account balances.  
(Re-drafting of trial balance need not be covered.)
(g) Cash Book  
Meaning, types of cash books, preparation of single column cash book.

5. Banking  
Commercial Banks - Functions and Types of Accounts (Savings, Current, Recurring & Fixed Account – meaning and difference only).

6. Trade  
(a) Channels of distribution: Physical - C & F Agents, Wholesalers, Distributors & Retailers (Meaning only).
(b) E-commerce & E-trade  
Merits and demerits of online trading.

7. Social Responsibility of Commercial Organisations towards the Environment:  
- E- Waste Management  
- Recycling  
- Afforestation  
- Eco Friendly products  
- Legal Compliance of environmental norms  
(A brief understanding of the above).

INTERNAL ASSESSMENT  
A minimum of three assignments are to be done during the year, as assigned by the teacher.
CLASS X

There will be one written paper of two hours duration carrying 80 marks and Internal Assessment of 20 marks.

The paper will be divided into two sections A and B.

Section A (Compulsory) will consist of questions requiring short answers and will cover the entire syllabus. There will be no choice of questions.

Section B will consist of questions, which will require detailed answers. There will be a choice and candidates will be required to answer four questions from this section.

1. Stakeholders in Commercial Organisations
   (a) Meaning of stakeholder, types: Internal (shareholder, employee and employer – meaning of each) and External stakeholders (supplier, creditor, government and society – meaning of each); differences between internal and external stakeholders.
   (b) Expectations of employers (owners and managers), employees, creditors and suppliers, government and society from a commercial organization.

2. Marketing and Sales
   (a) Marketing
      Meaning and objectives of marketing. Difference between marketing and sales.
   (b) Product and service
      Meaning and difference between a product and a service (with examples).
   (c) Pricing
      Meaning and objectives
   (d) Advertising and Sales promotion
      Advertising: meaning, importance of advertising; merits and demerits, difference between advertising and publicity. Advertising Agency; meaning and functions only. Social advertising media - Concept and examples only.

   Sales promotion – meaning and techniques; difference between advertising and sales promotion.

   (e) Consumer Protection
      Consumer Protection Act (1986); features of the Act, rights of a consumer, Consumer exploitation; meaning and types, Importance of consumer awareness.

   (f) E-commerce
      Introduction and benefits over traditional methods of transactions. E-tailing, E-advertising, E-marketing and E-security (meaning only). ERP and its modules (brief concept).

3. Finance and Accounting
   (a) Capital and Revenue
      Capital and revenue receipts, capital and revenue expenditure (meaning, difference and examples) deferred revenue expenditure (meaning and examples)
   (b) Final accounts of Sole Proprietorship
      • Meaning and preparation of Trading account, Profit and Loss account and Balance sheet based on the given trial balance with the adjustment of closing stock only.
      • (Preparation of manufacturing account, profit and loss on sale of assets, intangible and fictitious assets, prepaid and accrued expenses and incomes are excluded.)
   (c) Costs
      Fundamental concept of Cost Classification of costs- based on behaviour (fixed, variable, semi-variable), nature (direct, indirect).
   (d) Budgeting
      Meaning and utility of budgeting; comparison between budgeting and forecasting; types of budgets: sales, production, cash, purchase and master – meaning only.
(e) Sources of Finance

(i) Capital Market

Meaning and functions of Capital Market.

(ii) Sources of raising capital

Long term: Meaning of shares (Types; preference and equity) and debentures, differences between the two.

Short term: loans from commercial banks (cash credit, overdraft, discounting of bills – meaning only).

4. Human Resources

(a) Recruitment, selection and training.

(i) Recruitment – meaning; sources: internal and external; advantages and disadvantages of internal and external sources.

(ii) Selection - meaning and steps, types of selection tests.

(iii) Training – meaning, objectives and methods of training (on the job and off the job).

(b) Industrial relations and trade unions.

Industrial relations: Meaning and objectives; Trade Unions: Meaning and Functions.

(c) Social Security:

Concept of Social Security; brief reference to Provident Fund, Gratuity, Pension, Group Insurance and Maternity Benefits. New Pension Scheme. (Acts are not required).

5. Logistics

Meaning of logistics and its classification

(a) Transportation

Modes of transportation: land (road and rail), air and water; merits and demerits of each.

6. Banking

(i) Central Bank

Central Bank: Meaning and functions, Difference between the Central Bank and Commercial Banks.

(ii) Internet Banking

Modes of transferring money / Net Banking: NEFT, RTGS, IMPS, mobile wallets: meaning only.

ATM, Credit & Debit cards- meaning & difference, caution to be taken while using these cards.

(iii) Financial fraudulent practices

Credit card fraud, false accounting, insurance fraud, intellectual property fraud, internet and cyber fraud. A brief understanding of these types of financial fraud.


(i) Environment (Protection) Act,1986 - Features of the act.

(ii) Central Pollution Control Board – Functions only.
INTERNAL ASSESSMENT
A minimum of three assignments are to be done during the year, as assigned by the teacher.

EVALUATION
The project work is to be evaluated by the subject teacher and by an External Examiner. The External Examiner shall be nominated by the Head of the school and may be a teacher from the faculty, but not teaching the subject in the relevant section/class. For example, a teacher of Commerce/Accounts of Class XI may be deputed to be the External Examiner for Class X Commercial Studies project work.

The Internal Examiner and the External Examiner will assess the candidate’s work independently.

Award of marks (20 marks)
Subject Teacher (Internal Examiner) 10 marks
External Examiner 10 marks

The total mark obtained out of 20 are to be sent to the Council by the Head of the school.

The Head of the school will be responsible for the entry of marks on the mark sheets provided by the Council.
COMPUTER APPLICATIONS (86)

Aims:
1. To empower students by enabling them to build their own applications.
2. To introduce students to some effective tools to enable them to enhance their knowledge, broaden horizons, foster creativity, improve the quality of work and increase efficiency.
3. To enable students to learn to use the World Wide Web in order to gather knowledge and communicate with students and the academic community all over the world.
4. To enable students to learn to process words and numbers, analyze data, communicate ideas effectively and make the optimum use of computer resources.
5. To help students learn fundamental concepts of computing using object oriented approach in one computer language.
6. To provide students with a clear idea of ethical issues involved in the field of computing.

CLASS IX

There will be one written paper of two hours duration carrying 100 marks and Internal Assessment of 100 marks.

The paper will be divided into two sections A and B.

Section A (Compulsory – 40 marks) will consist of compulsory short answer questions covering the entire syllabus.

Section B (60 marks) will consist of questions which will require detailed answers and there will be a choice of questions in this section

THEORY – 100 Marks

1. Operating System
   i) Introduction to Operating System
      The need for an operating system, features and functions of an operating system and familiarity with installing and uninstalling software.

      Functions and features of an operating system (examples of single user and multiple users); familiarize the students with installation and un-installation of connected peripherals and other related softwares like dictionaries, encyclopedias, etc.

   ii) Graphic User Interface
      Working with the Graphical User Interface (GUI), Elements of a GUI, handling files and directories under GUI, managing the desktop.

      Concept of an active window. Familiarity with the icons, the buttons and the task bar.

      Resizing a window. Handling multiple windows.


      Creating shortcuts on the desktop, arranging the folders on the desktop.

2. The Internet

   Internet, e-mail, WWW, modem and related protocols.

   Working of internet, creating an e-mail account, sending and receiving e-mails, web servers, search engines to perform a simple search and Boolean operators to fine tune a search, basic working of a modem (modulation and demodulation) through block diagrams only. Protocols and its need (FTP, HTTP, IMAP, POP, SMTP). Downloading information.
3. Computing and Ethics

Ethical issues in computing.

Intellectual property rights; protection of individual’s right to privacy; data protection on the internet; protection against Spam; software piracy, cyber crime, hacking, protection against malicious intent and malicious code.

The stress should be on good etiquette and ethical practices.

4. Office Application Software:

Word processor, Multimedia presentation and Spreadsheets.

Discuss the following features for Word Processor, Multimedia Presentation and Spreadsheets:

Opening and closing, saving, editing, formatting, printing, spell check, grammar and header/footer.

Special features:

Word Processor – inserting a table and working with tables.

Multimedia Presentation – the students should be able to create a presentation using images/pictures, sound, video and custom animation. Students should be able to import material from word processors, spreadsheets, databases and internet.

Spreadsheets – Using formulae functions (mathematical), working with ranges, graphs and charts. Difference between absolute and relative references.

5. Database Packages

The need for database management; creating and saving a database; editing a database; performing calculations; modifying the structure of a database; sorting, indexing; querying; report generation. Working with multiple databases, object linking and embedding, creating applications.

The need for database management for handling vast amount of data-storing, sorting, summarizing, classifying and retrieving quickly.

Defining the structure of a database, entering data of various types, saving it in an appropriate area.

Adding, deleting and modifying records, global editing.

Performing calculations on one record or a group of records.

Modifying the structure of a database by inserting, deleting or modifying fields.

Sorting on one field/multiple fields, sorting selected records/all the records.

Indexing on one field/multiple fields. The need for re-indexing. Sorting vs. Indexing.

Setting query condition, Relational and Logical Operators, setting query using multiple conditions.

Generating detailed or summary reports.

–Working with multiple databases and explain the relationship (one to one, one too many, many to one and many to many) through real life examples.

Linking objects/embedding objects, linking vs. embedding.

Creating database applications depending upon the requirement of the user.

6. Elementary Concept of Objects and Classes

Modelling entities and their behaviour by objects; a class as a specification for objects and as an object factory; computation as message passing/function calls between objects (many examples should be done to illustrate this). Objects encapsulate state (attributes) and have behaviour (functions). Class as a user defined type.

A class may be regarded as a blueprint to create objects. It may be viewed as a factory that produces similar objects. A class may also be considered as a new data type created by the user, that has its own functionality.

All the four features of Object Oriented Programming should be defined and explained using real life examples.

Analyze each object and show how each contains attributes and responds to certain messages or permits certain operations.

Emphasize that an object is an instance of a class. A single object is just a bundle of values, one for each attribute in the class.
7. Values and types

Tokens and its types, Primitive types, operations on primitive values, expressions, assignment (assignment is also an expression).

*Introduce the primitive types and the range of values each represents. Discuss all the operations that can be done with primitive types namely mathematical, relational and logical.* —Discuss precedence and associativity of operators. *Introduce the concept of type casting.*

*Introduce System.out.println and System.out.print, - for simple output.*

Discuss different types of errors occurring during execution and compilation of the program (syntax errors, runtime errors and logical errors).

8. Conditionals and non-nested loops

Application of if else, if else if ladder, switch-case (default, break).

Fixed number of iterations- the for loop. Unknown number of iterations - while loop, do-while loop.

The conditional/ternary operator (?) : ) should be introduced at this point.

Loops are fundamental to computation and their need should be shown by examples. -

Examples: various number based problems: prime numbers, composite numbers, perfect numbers, fibonacci numbers, etc. -

**INTERNAL ASSESSMENT - 100 Marks**

This segment of the syllabus is totally practice oriented. The accent is on acquiring basic usage skills quickly and efficiently.

**Assignments and Application Building**

Students should complete a number of laboratory assignments during the whole year to reinforce the concepts studied in the class.

*The students should build one real life application using elements from most of the packages used (topics 1-7). Great care should be exercised to ensure that most of the components of the packages are used while building the application.*

**Important:** In Class IX mostly primitive types should be used to construct Objects.

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**Suggested list of Assignments:**

**For topics (1 – 5)**

1. Connect to net. If you are already connected start a browser and a search engine and perform a simple search on any of the subjects. Then perform a Boolean search for the same topic and note the difference. Create your own email ID and send an e-mail.

2. A story is given in which the main character is a lady, Mrs. James. Make changes in the document using find and replace so that the main character becomes a gentleman Mr. Brown. Take care of the pronouns.

3. Design a presentation to launch an awareness program like “Save the Earth”.

4. Create a presentation to highlight the activities in your school.

5. Build a friendly database to access phone numbers, emails and addresses conveniently.

**For topics (6-8)**

The laboratory assignments will form the bulk of the course. Good assignments should have problems which require design, invention of an algorithm and only then implementation and testing. The problems will mimic a real life problem and require careful design or will require an interesting algorithm to solve it. They should also embody one or more concepts that have been discussed in the theory class. A significant proportion of the time has to be spent in the laboratory. Computing can only be learnt by doing.

Some sample problems are given below as examples. The problems are of varying levels of difficulty:

6. Enter marks of ten students in six subjects, find the total marks and the average of each student using Mathematical functions and make a chart on the basis of their average marks.

7. Create a table in a Word Processor for your class with the following fields: Roll No., Name, Date of Birth and Optional Subject.

8. Implement a Calculator class that models a handheld calculator. It should have (at least) the following functionality: addition, subtraction, multiplication, integer division, remainder, unary minus, enter, clear.
9. A student has a name, roll number, class in which studying, and marks in 6 subjects. Design a class for student. Write constructors, get and set functions and separate functions to return the total, percentage and grade.

10. Fibonacci series is obtained by adding the previous two terms. For example: 1,1,2,3,5,8,13,21…etc.

Fibonacci primes are prime numbers that belong to the Fibonacci series. For example 2,3,5,13… etc. Define a class NumberSeries with suitable methods which takes an integer argument and prints out all the Fibonacci primes below that number.

11. n is a perfect number if the sum of all the factors of the number (including 1) excluding itself is n. For example:
   6 = 1+2+3
   28=1+2+4+7+14

Define a class called Number Problems which have the following functions:
   int sumOfFactors(int n) - which returns sum of all the factors of the number n except itself.
   boolean isPerfect(int n) – which returns true if the number n is perfect and false otherwise.
   void PerfectNosBelow(int lim) - which first prints out all perfect numbers less than lim. Each perfect number should be printed on a single line along with its factors (see below). So for example the output from PerfectNosBelow(10) will be:
   6 = (1,2,3)

Important: This list is indicative only. Teachers and students should use their imagination to create innovative and original assignments.

Some Ideas for Application Building:

1. Trace the evolution of Computing over the centuries.
2. How computers affect human beings. Focus upon the Ergonomic, Psychological and Social aspects.
3. Visualize the future based on current developments in technology. Focus upon its impact and the ethical questions involved.

4. Find out how each component of the computer works. Build a presentation to explain what really goes on, inside a computer.
5. Build a dictionary or a thesaurus database and use it to find synonyms, antonyms and the pronunciation of words.
6. Build a project to store the data of various cricket teams and output it in a variety of ways. Make future projections on the basis of this data.
7. Collect the data on the state of air/water/noise pollution in your area with the help of your chemistry teacher. Use your computer to keep track of this data and analyze it. Launch an awareness campaign and find ways to improve the situation. You can make pamphlets and presentations with the help of your computer.
8. Ask your teacher/ father/ mother/ Principal as to what are the documents they need for their work. Prepare a list and see if you can make some templates to help them. Help them with their budgets, accounting and future planning.
9. Write a small book of poems or quotations and index it. Build the table of contents.
10. You are building your own web page. What material will you require? Create it.
11. Visit your school library. Build a project to handle the issuing and returning of books.
12. Build a project to generate various quizzes and puzzles automatically.
13. Imagine you are organizing an event; say a three-day computer festival in your school. Use your computer to manage all the planning and details.
14. Visit your Bank. Find out about the various kinds of accounts e.g. Saving Accounts, Current Accounts, Fixed Deposit Accounts, and Recurring Deposit Accounts. Design a project to handle at least one kind of account.
15. Visit a small retail organization. Build a project to handle the bills and inventory.
16. Visit your school office. Study the teachers’ payroll system. Design a system to print pay slips.
17. Visit a hotel. Study the various processes. Design a project to handle the booking and checking out.
18. Visit the LIC office. Study how they handle various policies. Design a project to handle any one kind of policy.

19. Design a Booklet (Giving details of the organization, courses offered and the additional facilities provide by the Institute), Handbills and Posters for advertisement for a newly established Computer Institute.

20. Create a multi page brochure for a travelling agency, including the following points:
   - Description of the places to be visited
   - Schedules of various trips
   - Costs Involved

**Important:** This list is indicative only. Teachers and students should use their imagination to create innovative and original applications.

**Application Building Assignments (Class IX)**

**Proposed Guidelines for Marking**

The teacher should use the criteria below to judge the internal work done. Basically, four criteria are being suggested: analysis, design, execution and effectiveness. The important questions to be asked when evaluating each criterion are shown. 25% of the total credit is assigned to each criterion - so each is equally important. The actual grading will be done by the internal teacher based on his/her judgment. However, one possible way: divide the outcome for each criterion into one of 4 groups: excellent, good, fair/acceptable, poor/unacceptable, then use numeric values for each grade and add to get the total which can be multiplied by a suitable factor to get the final marks.

**Analysis:**

Has the problem been analyzed carefully?

Have suitable tools been chosen?

**Design:**

Is the choice of data structures proper?

Is the logic suitable for the problem?

How efficient is it?

**Execution:**

Does the application run correctly?

**Effectiveness:**

Does the application solve the problem effectively?

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<th>Criteria (mm -40)</th>
<th>Analysis (mm-10)</th>
<th>Design (mm-10)</th>
<th>Execution (mm-10)</th>
<th>Effectiveness (mm-10)</th>
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<td>Good</td>
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<td>Poor</td>
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</table>

**EVALUATION**

The teacher in-charge shall keep the record of all the assignments and evaluate them internally.

The teacher-in-charge shall evaluate one application built by the student. He/She shall ensure that most of the components of the syllabus have been used appropriately in the chosen application.

**SOFTWARE FOR CLASS IX:**

There is a wide variety of software packages and operating systems available but software has to be chosen very carefully. Schools are expected to explore any suitable Operating System or Software Package, which is being used currently and is likely to be used in future, and choose it for covering topics 1-5 of the syllabus.

The criteria used in the selection of software should be:
- It should have a good user interface so that the beginners may learn to use it easily.
- It should be used widely and be easily available.
- The material related to the software should be abundantly available.

In this respect the latest versions of the chosen software should be made available.

Great emphasis should be placed on ethics. Some people do not object to using pirated software. They do not realize that it has something to do with ethics. It is important to introduce these concepts to the students in the very beginning.

For covering topics 6-8

- Any suitable Operating System can be used.

For teaching fundamental concepts of computing using object oriented approach, BlueJ environment (1.2 or higher version) compatible with JDK (1.3 or higher version) as the base or any other editor or IDE, compatible with JDK (1.3 or higher version) as the base may be used. Ensure that the latest versions of software are used.
CLASS X

There will be one written paper of two hours duration carrying 100 marks and Internal Assessment of 100 marks.

The paper will be divided into two sections A and B.

Section A (Compulsory – 40 marks) will consist of compulsory short answer questions covering the entire syllabus.

Section B (60 marks) will consist of questions which will require detailed answers and there will be a choice of questions in this section

THEORY – 100 Marks

1. Revision of Class IX Syllabus
   (i) Elementary Concept of Objects and Classes.
   (ii) Values and types.
   (iii) Conditionals and non-nested loops.

2. Class as the Basis of all Computation

Objects and Classes

Objects encapsulate state and behaviour – numerous examples; member variables; attributes or features. Variables define state; member functions; Operations/methods/ messages/ functions define behaviour.

Classes as abstractions for sets of objects; class as an object factory; concept of type, primitive data types, composite data types. Variable declarations for both types; difference between the two types. Objects as instances of a class.

Consider real life examples for explaining the concept of class and object.

3. Constructors

Constructor and its types.

Default constructor, parameterized constructor, constructor with default parameter and constructor overloading.

4. Functions

Functions and its types

Need of functions. Types of functions (pure and impure). Function declaration and definition, ways of calling functions (call by value and call by reference)

Returning information/messages from the functions and use of multiple functions and more than one function with the same name (function overloading).

Use of static data member with static member function. Discuss invocation of functions on objects (through the reference). Discuss the concept of this with a reference to the object on which the invocation is made again.

5. Class as a User Defined Type

Class as a composite type, distinction between primitive type and composite or class types.

Class may be considered as a new data type created by the user, that has its own functionality.

The distinction between primitive and composite types should be discussed through examples. Show how classes allow user defined types in programs. All primitive types have corresponding class wrappers.

- The following methods are to be covered:
  int parseInt(String s), int valueOf(String s),
  long parseLong(String s), long valueOf(String s),
  float parseFloat(String s), float valueOf(String s),
  double parseDouble(String s),
  double valueOf(String s), boolean isDigit(char ch),
  boolean isLetter(char ch),
  boolean isLetterOrDigit(char ch),
  boolean isLowerCase(char ch),
  boolean isUpperCase(char ch),
  boolean isWhitespace(char ch),
  char toLowerCase(char ch),
  char toUpperCase(char ch)

6. Iterations.

Loops, nested loops, break and continue.

Revision of loops (while, do while and for).

Show how each kind of loop can be converted to the other form of the loop. Introduce nested loops through some simple examples. Demonstrate break and continue statements with the help of loops/nested loops.

7. Using Library Classes

Simple input/output. String, packages and import statements.

Browsing the documentation for classes in the libraries and illustrating their use. The following functions have to be covered:
String library functions:
Char charAt (int n)
int compareTo(String1, String2)
String concat(String str)
boolean endsWith(String str)
boolean equals(String str)
boolean equalsIgnoreCase(String str)
int indexOf(char ch)
int lastIndexOf(char ch)
int length( )
String replace (char oldChar,char newChar)
boolean startsWith(String str)
String substring(int beginIndex, int endIndex)
String toLowerCase( )
String toUpperCase( )
String trim( )
String valueOf(all types)

Mathematical Library Functions:
pow(x,y), log(x), sqrt(x), ceil(x), floor(x), rint(x),
abs(a), max(a, b), min(a,b), random( ), sin(x), cos(x),
tan(x).

Introduce the concept of packages and import statement (Avoid discussing the details of libraries).

8. Encapsulation
Access specifiers and scope and visibility

9. Arrays
Arrays – storing, retrieving and arranging data
Arrays and their uses, sorting algorithms - selection sort and bubble sort; Search algorithms – linear search and binary search - Example of a composite type. Array creation. Sorting and searching algorithms should be discussed (single dimensional array only).

10. Input/Output
Basic input/output using Scanner and Printer classes from JDK.

The Scanner class can be used for input of various types of data (e.g. int, float, char etc.) from the standard input stream.

INTERNAL ASSESSMENT - 100 Marks

Assignments and Project
The students should complete a number of laboratory assignments during the whole year to reinforce the concepts studied in the class.
The students should build one real life project using the concepts taught.

Suggested list of Assignments:
Good assignments should have problems which require design, invention of an algorithm and then only implementation and testing. The problems will mimic a real life problem and require careful design or will require an interesting algorithm to solve it. They should also embody one or more concepts that have been discussed in the theory class. A significant proportion of the time has to be spent in the laboratory. Computing can only be learnt by doing. Some sample problems are given below as examples. The problems are of varying levels of difficulty.

1. A student has a name, roll number, class in which studying, home address and a date of birth. Design a class containing constructors and user define functions, get and set – get to input data and set to display data.

2. Write a class Convert with methods as follows:
a) takes 4 arguments representing miles, yards, feet and inches and convert them into kilometres, meters and centimetres.
b) Takes an argument representing degrees Fahrenheit and convert it to degrees centigrade.
c) a kilobyte is interpreted in two ways: sometime it is 1000 bytes (actually correct), but often (and traditionally) it is $2^{10}$ which is 1024. Similar discrepancies arise for mega, giga, tera and peta (each is $1000$ (or $2^{10}$) times the previous one).
The function should take the $10^3$ (standard kilo) and give the equivalent value using $2^{10}$ as a kilo for all the above.

3. Define a class Recurring Patterns and define methods in it which will print the following patterns.
a) The method takes an integer argument \( n \) and prints the following pattern, shown for \( n=4 \).

```
  a
  a a
  a a a
  a a a a
  a a a
  a a
  a
```

b) The method takes an integer argument and prints the following pattern, shown for \( n=4 \).

```
  1
  121
  12321
  1234321
  12321
  121
  1
```

c) The method takes an integer argument and prints the following pattern, shown for \( n=4 \).

```
abcdcba
abc cba
ab   ba
a      a
ab   ba
abc cba
abcdcba
```

**Note:** for the three methods above you can assume that \( n<10 \). However, think about what you would do if you allowed \( n \) to be a 2 or even 3 digit integer.

4. Define class point to model points in the X-Y plane. Define functions to translate a point along the X and Y axes respectively. Define a function that calculates the distance from another point.

5. Write a program to input two strings. Check both the strings and remove all common characters from both the strings. Print both the strings after removing the common characters.

**Important:** This list is indicative only. The teachers and students should use their imagination to create innovative and original assignments.

**Some Ideas for the Project:**

Students have already been introduced to spreadsheets, databases, word processors and presentation software earlier. That familiarity should be used to introduce the idea of how the software can be designed by modeling it as operations permitted on different objects. Other real world systems can also be modeled on the same lines:

1. Calculators
2. Banks
3. A school
4. Toys
5. A game
6. Traffic lights
7. Elevators
8. Retail Outlets
9. An office
10. A company
11. Household gadgets like microwave ovens
12. Washing machines
13. Air Conditioners
14. Cars
15. Airplanes
16. Vending machines
17. Automatic Teller Machines (ATM)
18. A Social System
19. A musical composition
20. A clinical diagnostic system

**Important:** This list is indicative only. The teachers and students should use their imagination to create innovative and original projects.

**Programming Project (Class X)**

**Proposed Guidelines for Marking**

The teacher should use the criteria below to judge the internal work done. Basically, four criteria are being
suggest: class design, algorithm design, coding and documentation and execution. The important questions to be asked when evaluating each criterion are shown. 25% of the total credit is assigned to each criterion - so each is equally important. The actual grading will be done by the teacher based on his/her judgment. However, one possible way: divide the outcome for each criterion into one of 4 groups: excellent, good, fair/acceptable, poor/unacceptable, then use numeric values for each grade and add to get the total which can be multiplied by a suitable factor to get the final marks.

**Class design:**
Has a suitable class (or classes) been used?
Are all attributes with the right kinds of types present?
Is encapsulation properly done?
Is the interface properly designed?

**Algorithm design:**
Is the choice of data structures proper?
Is the algorithm suitable for the problem?
How efficient is it?

**Coding and documentation:**
Is the coding done properly? (Choice of names, no unconditional jumps, proper organization of conditions, proper choice of loops, error handling, code layout) Is the documentation complete and readable? (class documentation, variable documentation, function documentation, constraints, known bugs - if any)

**Execution:**
Does the program run on all sample input correctly?

<table>
<thead>
<tr>
<th>Criteria (Total – 40 marks)</th>
<th>Class Design (mm-10)</th>
<th>Algorithm Design (mm-10)</th>
<th>Coding and Documentation (mm-10)</th>
<th>Execution (mm-10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
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<tr>
<td>Good</td>
<td>8</td>
<td>8</td>
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<tr>
<td>Fair</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Poor</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
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</tbody>
</table>

**EVALUATION:**
The teacher in-charge shall keep the record of all the assignments done by the student throughout the year and evaluate them internally. The student is expected to do one project under the guidance of the teacher in charge.

An External Examiner shall be nominated by the Head of the school and may be a teacher from the faculty, but not teaching the subject in the relevant section/class. For example, a teacher of Computer Science of Class VIII may be deputed to be the External Examiner for Class X, Computer Applications Projects.

**Evaluation of practical work will be done as follows:**
Subject Teacher (Internal Examiner): 50 marks
External Examiner: 50 marks
The total marks obtained out of 100 are to be sent to the Council by the Head of the School.
The Head of the School will be responsible for the entry of marks on the mark sheets provided by the Council.

**EQUIPMENT**
There should be enough computer systems to provide for a teaching schedule where at least three-fourths of the time available is used for programming and project work. The course shall require at least 4 periods of about 40 minutes duration per week. In one week out of 4 periods the time should be divided as follows:
- 1 period – Lecture cum demonstration by the Instructor
- 3 periods – Assignments and Project

The hardware and software platforms should be such that the students can comfortably develop and run programs on those machines.

Since hardware and software evolve and change very rapidly the schools shall need to upgrade them as required. Following are the minimal specifications as of now.
RECOMMENDED FACILITIES:

- A lecture cum demonstration room with a MULTIMEDIA PROJECTOR/ an LCD and O.H.P. attached to the computer.
- A white board with white board markers should be available.
- A fully equipped Computer Laboratory that allows one computer per student.
- Internet connection for accessing the World Wide Web and email facility.

**The computers should have a minimum of 128 MB RAM and at least a PIII or Equivalent Processor.**

- Good Quality printers.
- A scanner, a web cam/a digital camera (Should be provided if possible).

SOFTWARE FOR CLASS X

*Any suitable Operating System can be used.*

For teaching fundamental concepts of computing using object oriented approach, BlueJ environment (1.2 or higher version) compatible with JDK (1.3 or higher version) as the base or any other editor or IDE, compatible with JDK (1.3 or higher version) as the base may be used. Ensure that the latest versions of software are used.
COOKERY (69)

Aims:
1. To acquire the knowledge of the terms, facts, concepts and principles required for cooking.
2. To develop an understanding of the basic methods of cooking.
3. To acquire skills related to:
   - Selecting and preparing nutritive foods for the family.
   - Planning and providing balanced meals for the members of the family.
   - Preparing menus and cooking food for the family.

CLASS IX

There will be one paper of two hours duration carrying 100 marks and Internal Assessment of 100 marks. The paper will be divided into two Sections, A and B.

Section A will consist of compulsory short answer questions covering the entire syllabus.

Section B will consist of questions that will require detailed answers. There will be a choice of questions. Candidates will be required to answer four questions from this section.

PART 1: THEORY - 100 marks

1. The Nutritive Value of Foods
   (i) Introduction to food and its role in providing adequate nutrition and in maintaining good health.

   Explaining the relationship between food and health is an important consideration while preparing meals for the family. Basic knowledge on food, good nutrition and health will help create an awareness regarding the necessity for developing healthy food habits. Definition of these terms and their relationship between food and health should be dealt with in this topic.

   (ii) Food and nutrients; basic food groups as suggested by ICMR

   Listing the nutrients provided by food should be dealt with in this topic. Creating awareness about the nutrients and their food sources will lay a foundation to ensure they are well preserved and not lost while preparing meals.

   (iii) Study on the following nutrients provided by food

   (iv) Carbohydrates

   (v) Proteins

   (vi) Fats and lipids

   (vii) Vitamins (A, C, D, E and K, Thiamine, Riboflavin and Niacin)

   (viii) Minerals (Calcium, Phosphorous, Iron and Iodine)

   Chemical structure, classification, functions and food sources of these nutrients. Knowledge of deficiency disorders such as protein-calorie malnutrition, Kwashiorkor, night blindness, rickets, osteomalacia, scurvy, and pellagra.

   Studying each aspect of the various nutrients present in food enables a scientific understanding of their significant role in maintaining good health. Such knowledge is important for the inculcation of right food habits, proper food management and avoiding food fads and eating disorders among young adults. Analysis of such food habits will help in dealing with problems associated with being undernourished, underweight or overweight.

2. Basic methods of Cookery and Principles involved:
   (i) Need for cooking and principles of cookery: basic terminology used in cooking

   This topic gives an introduction to the importance of cooking food and the corresponding principles involved. Knowledge of the principles involved will give an understanding on how best to use the
cooking methods so that the cooked food is digestable, palatable and presentable. Understanding the use of right terminologies at the various stages of cooking methods help in developing the right cooking skills.

(ii) Basic methods of cookery: boiling, steaming, cooking under pressure, stewing, baking, frying, grilling; advantages and disadvantages of these methods of cooking; precautions to be observed

A brief description of these cooking methods, their advantages and disadvantages will help in creating awareness about the correct choice of a method for cooking a particular food item. Understanding the correct procedure is important for getting the ideal final product, preserving their nutritive value. The various methods of preparation of food and their suitability for various food items and the precautions to be taken to avoid over or under cooking are to be emphasised. The topic should also cover the need for safety in food handling procedures.

3. Methods of preparing and cooking food to preserve nutritive properties and to improve flavour.

(i) Guidelines to be followed while cooking food: to preserve the nutritive values, make them available to the person consuming it and improve the flavour

A brief account of the do’s and don’ts during the process of handling and cooking food enables a learner to adopt correct eating habits. The relationship between the way the food is cooked and its consumption is an important consideration and needs to be drawn out for creating right food habits.

(ii) Methods of enhancing food values: sprouting and germinating, malting, fortification, combination, fermentation, and par-boiling.

Explanation on how the nutritive values of food can be enhanced through various methods need to be generated specially during situations like food scarcity and non-seasonal unavailability. Also, it can help in providing the knowledge on the special needs of people whose requirements with respect to specific nutrient contents in their diets vary.

(iii) Use of spices, leavening agents, tendering agents, thickening agents: importance of garnishing and use of herbs

Knowledge of these terms can aid in modifying food consistency, texture and flavour to improve food acceptability and absorption of nutrients.

4. Physical changes in food during cooking.

(i) Food components and major constituents: carbohydrates, protein, fats and inorganic mineral components

An understanding of the properties of the major food components and the changes that occur during the handling, processing and cooking processes is an important factor in making the right choice of a cooking method for each type of food. A brief discussion on these will enable a student to understand and carry out the appropriate cooking method to obtain an acceptable final product while preserving the nutritive contents.

(ii) Effect of cooking (heat) on cereal foods (rice and wheat), meat, egg, milk, pulses, sugar, fruits and vegetables; role of acids and enzymes

Understanding the properties of these food items and the changes that occur during cooking process is necessary to adopt healthy cooking practices and the care to be taken to preserve their consistency, texture, colour (pigments), flavour and nutritive values. Role of acids and enzymes in modifying the texture, flavour and nutrient contents of food items need to be emphasised.

Note: Existing terms and conditions on the conduct of exams and internal assessments can remain as such.

PART 2: INTERNAL ASSESSMENT
To be assessed internally by the school - 100 Marks

Please note the guidelines for internal assessment as given for Class X.
CLASS X

There will be one paper of two hours duration carrying 100 marks and Internal Assessment of 100 marks.

The paper will be divided into two Sections, A and B.

Section A (compulsory) will consist of short answer questions covering the entire syllabus.

Section B will consist of questions that will require detailed answers. There will be a choice of questions. Candidates will be required to answer four questions from this section.

PART 1: THEORY - 100 marks

1. Choice and cost of seasonal foods: merits and intelligent use of convenience foods

   (i) Choice and cost of seasonal foods

   Detailed study of food guides for proper selection and the use of seasonal foods to ensure good nutrition. Advantages of seasonal foods - during season, foods are rich in nutrients and of low cost. Is the cost of foods related to their nutritional values? Suggestion of cheaper substitutes for expensive food items, e.g. green leafy vegetables, amla, guava etc.

   (ii) Choice and purchase of perishables, semi-perishables and non-perishables and their hygienic storage

   Economical shopping: shopping at supermarkets, wholesale outlets, retail shops, street vendors – merits and demerits. Provision for hygienic storage of perishables, semi-perishables and non-perishables and use of minimum resources for maximum benefit in limited food budgets.

   (iii) Use of convenient foods, such as tinned, packed, frozen and processed foods

   Merits and demerits of using convenience foods in diets; factors for selection of foods – variety and labour and time saving. Reading labels of packed convenient foods for brand name, trademark, shelf life, dates of manufacture and expiry, food standard/quality marks such as ISI, FPO and Agmark for right choice of foods. Encouraging the use of convenience foods sparingly and use more of fresh seasonal foods for obtaining good nutrient values and avoiding preservatives in diets.

2. Meal planning and balanced diets: use of five food groups as suggested by ICMR

   (i) Objectives of meal planning

   Importance of factors like balanced diet (age, gender, occupation and health status), climatic conditions, choosing nutritionally rich but economical foods within the five food groups, storage space, seasonal variations in the diets, etc.

   (ii) Psychological aspects of food planning

   Likes and dislikes, state of mind due to stress, food fads, traditional and cultural influences on meal planning. Planning meals for festivals, special occasions and unexpected visitors.

   (iii) Planning meals for various age groups

   Planning balanced meals according to ICMR nutrient allowances for pre-school, school going children, special needs of adolescents and the elderly, pregnant and lactating women.

3. Therapeutic diets and planning meals

   (i) Definition of diet therapy, reasons for using therapeutic diets, and types of therapeutic diets.

   Brief foundation on dietetics and diet therapy; types of diets – liquid, semi-liquid, solid and soft; treating illnesses through diets at home under the proper guidance of a medical practitioner/nutritionist. Efforts are to be made to incorporate variety and ingenuity through a discussion on various sample diets.

   (ii) Obesity: causes and diet therapy

   Factors leading to obesity, role of proper dieting habits, right choice of food, exercise and proper meal pattern. Significance of diet counselling.

   (iii) Planning meals for the invalids and convalescents

   Role of diets in treating illnesses such as fever, anaemia, diarrhoea, hypertension and diabetes. Suggestions for modification in diets for invalids and convalescents, keeping in mind
the health status, likes and dislikes and cultural habits.

4. Food preservation and storage

(i) Causes of food spoilage, advantage of food preservation, principles of food preservation

Factors for food spoilage: internal and environmental factors (micro-organisms, enzymes and insects); prevention or delay of self decomposition of food and of microbial decomposition; advantages of food preservation. Principles involved in food preservation.

(ii) Long term and short term preservation methods at home – milk and milk products, egg, meat, fish, vegetables and fruits

Methods for preserving foods at home – refrigeration, deep freezing, dehydration, pickling, salting, preparing squashes, juices and jams using chemical preservatives; storing garden produce.

(iii) Commercial methods for preserving foods – canning, pasteurisation and cold storage

Hygienic and proper storage of various food items at commercial levels for future use, reducing costs and providing variety in the diets.

5. Kitchen planning

(i) Types of kitchen and work centres

Types of kitchen layouts: one wall, two wall, U-shaped, broken U-shaped and L-shaped kitchens; modular kitchen; detailed study on the four main work centres – preparation, cooking, washing, and serving. Knowledge of the basic requirements of the planned kitchen layouts, fixtures, equipments and inter-space relationship to provide efficient utilisation of space and to avoid fatigue.

(ii) Factors to be considered while planning a kitchen

Contribution of proper lighting, water supply, ventilation, ceiling, floor, walls, storage fixtures and other necessary cooking items for convenient, comfortable and labour saving kitchen features, use of work simplification techniques.

(iii) Safety in kitchen

Use of proper materials for floors and walls, avoiding sharp edges on counters and proper storage for equipments, especially for sharp instruments like knives.

6. Kitchen hygiene

(i) Food hygiene, food handlers and the food stuffs

Rules for maintaining hygienic conditions in the kitchen and importance of personal hygiene of food handlers for providing clean food to the family members.

(ii) Food sanitation

Importance of food sanitation; related diseases such as diarrhoea, cholera and dysentery. Role of proper/uncontaminated water supply.

(iii) General cleanliness of kitchen

Regular (daily, weekly, monthly, yearly/seasonal) cleaning, ways and the materials to be used for maintaining kitchen hygiene, especially on the floors and the storage places.

(iv) Disposal of kitchen waste

Proper procedure to be adopted for the disposal of solid and liquid waste; care of bins, sink and drains, importance of good ventilation.

(v) Household pests

Care of food from food polluters such as cockroaches, ants, lizards and rodents, careful use of insecticide and pesticides at home. The topic creates an awareness of cleanliness within the kitchen and outside, aiming for a cleaner and safer environment during food preparations and storage.

7. Kitchen equipment

(i) Basic equipment for food preparation and cooking

Detailed study of materials used in cooking utensils, cutting devices, and stirring equipments – selection and care of pressure cookers and pans, microwave oven, non-stick cookware, plastic-ware, microwave-proof cookware. Precautions to be followed while
using them to maintain cleanliness and maximum safety in the kitchen

(ii) Equipments for serving

Features to be kept in mind while choosing them: cost, easy to handle, safety, durability, utility, size, design and aesthetics. Care, cleaning and storage of these equipments.

(iii) Table setting and table service

Detailed study of the various table services, such as formal, informal, and buffet.

PART 2: INTERNAL ASSESSMENT

To be assessed internally by the school - 100 Marks

Practical Work in Cookery

Candidates will be required to do practical work in one or more aspects of cookery. The teacher is free to assess the practical work either on the basis of continuous assessment or on the basis of periodical tests.

The minimum number of assignments for each academic year

Class IX - Five practical oriented assignments as prescribed by the teacher.

Class X - Five practical oriented assignments as prescribed by the teacher.

Suggested Assignments

1. The merits, use and care of various types of kitchen equipment and utensils.

2. Cooking processes: boiling, frying, steaming, baking, grilling, and stewing.

3. Planning and preparation of meals for different types of people on different occasions.

4. Mixing and baking bread, cakes, patties, etc.

5. Practice in the preparation of salads, pickles, juices, puddings, sweets, biscuits, etc.

6. Mixing and making chapatis, nans, etc.

7. Practice in preparation of squash, jam, etc.

8. Nutritive and healthy cooking.

Final Test

In addition to the practical work, the candidates will be tested in the planning and preparation of a meal by the External Examiner.

EVALUATION

The assignments/project work are to be evaluated by the subject teacher and by an External Examiner. The External Examiner may be a teacher nominated by the Head of the school, who could be from the faculty, but not teaching the subject in the section/class. For example, a Home Science teacher of Class VIII may be deputed to be an External Examiner for Class X projects.

The Internal Examiner and the External Examiner will assess the assignments independently.

Award of Marks

Subject Teacher (Internal Examiner): 50 marks

External Examiner: 50 marks

The total marks obtained out of 100 are to be sent to the Council by the Head of the school.

The Head of the school will be responsible for the entry of marks on the mark sheets provided by the Council.
# INTERNAL ASSESSMENT IN COOKERY - GUIDELINES FOR MARKING WITH GRADES

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Planning Efficiency</th>
<th>Working to time plan</th>
<th>Manipulation</th>
<th>Quality produced</th>
<th>Appearance/Arrangement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade I (4 marks)</td>
<td>Follows the question set and systematically organises the work process.</td>
<td>Is successful in handling parts of the question set and fits them within required time.</td>
<td>Excellent display of manipulative skills - can deal with a laboratory situation efficiently.</td>
<td>With a special insight into the question, the quality developed is of a high standard.</td>
<td>A fine aesthetic sense and artistic ability has been conveyed in the complete arrangement.</td>
</tr>
<tr>
<td>Grade II (3 marks)</td>
<td>Follows the question set except that the step-by-step work shows slow operational skill.</td>
<td>Is successful in handling parts of the question, but the smooth work appears to slow down.</td>
<td>Good control of manipulative skills, has been able to deal with each situation with ease.</td>
<td>The insight into the requirements of the question has been achieved and the quality is good.</td>
<td>The display of colour and equipment used gives an impression of sound organisation.</td>
</tr>
<tr>
<td>Grade III (2 marks)</td>
<td>Follows the question. Order of work process shows lack of co-ordination.</td>
<td>Is successful in handling the question, however the time link seems to break in some area.</td>
<td>Has been successful with the manipulative skills in parts then gradually slows down.</td>
<td>The quality has been developed well in part but the overall effect lacks some achievement.</td>
<td>The arrangement appears complete but some special details are missing.</td>
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<tr>
<td>Grade IV (1 mark)</td>
<td>Follows a part of the question, work sequence appears disorganised.</td>
<td>Is able to work only a part of the question within the time stated.</td>
<td>Begins with a control of the skills and is unable to sustain the effort.</td>
<td>Only a few areas have been well developed, which affect the total result produced.</td>
<td>Part of the arrangement is represented but the total appearance lacks finish and composition.</td>
</tr>
<tr>
<td>Grade V (0 marks)</td>
<td>Has not been able to interpret the question into proper laboratory organisation.</td>
<td>Time and work sequence is most disorganised.</td>
<td>Is unable to control and manipulate the required skills.</td>
<td>No standard of quality has been achieved due to poor understanding.</td>
<td>There has been no achievement in either the appearance or arrangement.</td>
</tr>
</tbody>
</table>
ECONOMIC APPLICATIONS (87)

Aims:
1. To familiarize students with the basic concepts of economics and economic phenomenon.
2. To develop their analytical skills.
3. To provide students with hands-on-experience in analyzing economic problems that they normally come across.

CLASS IX

There will be one theory paper of two hours duration of 100 marks and Internal Assessment of 100 marks.
The paper will consist of Part I and Part II.

Part I (compulsory) will contain short answer questions on the entire syllabus.

Part II will consist of questions that will require detailed answers. There will be a choice of questions.

THEORY – 100 Marks

1. Basic Concepts of Economics
   (i) Meaning and definition of Economics; Economic entities: Consumer, Producer, Households and Government. The importance of these economic entities. The meaning of an economy and role of the economic entities.
   A basic understanding of the concepts of economics. The definitions of economics with reference to allocation of resources and scarcity of resources (Robbins, Samuelson). Basic explanation of the role of consumer, producer, government and households in an economy.

   (ii) Three major problems of an economy: What to produce? How to produce? For whom to produce? Efficient use of resources; basic understanding of the terms: economic growth and economic development.
   A brief introduction to the basic problems of an economy - What to produce? How to produce? For whom to produce? Needs to be emphasized irrespective of the type of an economy. Manner in which economics as a subject helps us to allocate scarce resources in an efficient way needs to be explained. The concept of economic growth and economic development should be explained.

   (iii) The nature and the classification of an economy: developed, underdeveloped and developing economy; Capitalistic, Socialistic, Mixed economies - main features.
   A basic understanding of the features of capitalistic, socialistic and mixed economies is required. Meaning and classification of economies into developing and developed should be explained.

2. An Overview of Indian Economy
   The nature of Indian economy: the main sectors of Indian economy - Agriculture, Industry and Services. Role of these sectors in Indian economy and their interrelationship. The sectors according to ownership- private and public; the sectors according to type of economy- rural and urban.
   Role of agriculture in India and its problems.
   Impact of Agricultural practices on the Ecosystem.
   Construction of dams- loss of habitat species.
   Loss of top soil and desertification.
   Indiscriminate use of fertilizers and pesticides.
   Measures to check the ecosystem;
   Governmental initiatives: not building large dams for generating hydroelectric power which leads to less land being submerged and less displacement of people.
   Alternative cropping for checking loss of topsoil and desertification. Plantation and conservation of grasslands to check soil erosion. Use of manure, bio-fertilizers and bio-pesticides green manuring, compost. These are eco-friendly alternatives to pesticides and fertilizers.
   Role of Industries in the Indian Economy.
   Impact of industrial practices on the ecosystem.
Mining, industries, energy generation, automobiles, urbanisation leading to defacement of land, deforestation, deterioration of hydrological resources.

Industrial waste: mining operations, cement factories, oil refineries, construction unit.

Spoilage of landscape, pollution, health hazards, effect on terrestrial, aquatic (fresh water and marine) life.

Measures to check the ecosystem.

Improving efficiency of existing technologies and introducing new eco-friendly technologies.

Methods of safe disposal of waste - segregation, dumping, composting, drainage, treatment of effluents before discharge.

Abatement of pollution.

Air: setting standards and implementing them, using technical devices to reduce pollution.

Importance of Service Sector – National Income, Employment and Regional Development (in brief, no statistical data required). Interdependence of all three sectors (Primary, Secondary and Tertiary).

Meaning of Private and Public sector with examples. Meaning of Rural and Urban sector with examples.

3. Infrastructure of the Indian Economy

Economic and social infrastructure of Indian economy. Social infrastructure- education, health, family welfare and housing.

A basic understanding of the economic and social infrastructure and its role in India’s economic development. The problems pertaining to lack of such infrastructure and their adverse impact on the economy to be discussed.

4. Consumer Awareness

Ways in which consumer is exploited. Reasons for exploitation of consumers; Growth of consumer awareness; consumer behaviour in the market; consumer rights. Legal measures available to protect consumers from being exploited – (COPRA, RTI).

Understanding the importance of educating consumers of their rights - awareness of food adulteration and its harmful effects.

5. Globalization

Meaning and factors enabling Globalization, WTO, impact of Globalization.


WTO (main objectives), favourable impacts of the globalization – starting of MNC’s and benefits to Indian companies.

NOTE: IT IS SUGGESTED THAT CASE STUDIES MAY BE DISCUSSED ON THE FOLLOWING TOPICS-

- Globalization
- Consumer Awareness
- Bhopal Gas Tragedy
- Chernobyl Disaster

INTERNAL ASSESSMENT – 100 Marks

Candidates will be required to do a minimum of four assignments during the year, as assigned by the teacher.

Suggested list of assignments:

1. Identify 100 consumers of major brands of edible oils in a locality/area where you live. Draw up the pattern of their monthly expenditure on this product and compare it with the other household expenditure. Make a presentation of your findings in class.

2. Identify the major brands of bathing soaps that are available in the market in your area. Select a sample of 10 shops/department stores that sell these brands and collect the sales of these brands over a period of one week at these shops. Identify the brands that sell the most and make a presentation for your class.

3. Make a presentation on the central problems an economy faces. Explain these with reference to the Indian economy.
4. Take a developed country such as the USA and a developing country such as India. Analyze the main characteristics of these economies.


6. Take a table of food grain production in India from any textbook on Indian economy or any other secondary source such as internet. Interpret the changes in the production over a given period of time.

7. Given a table of population growth for period between 1971 and 2001 and table of contribution of agriculture, industry and services sector for the same period, compare the two tables and present your findings in the form of a presentation.

8. Make a presentation of the major trading partners of India in the last 15 years. Specify the major changes that have taken place in the last five years.

9. What are the major items of export and imports from India in the last five years? Use secondary data sources and make out the changes that have taken place in this context.
CLASS X

There will be one theory paper of two hours duration of 100 marks and Internal Assessment of 100 marks.

The paper will consist of Part I and Part II.

Part I (compulsory) will contain short answer questions on the entire syllabus.

Part II will consist of questions that will require detailed answers. There will be a choice of questions.

THEORY – 100 Marks

1. Demand and Supply: Basic Concepts
   Demand - Meaning and Types of Demand
   Supply - Meaning

   Law of demand and supply: demand and supply schedule and curve (both individual and market); movement and shift of the demand and supply curve; determinants of demand and supply; exceptions to the law of demand.

   Meaning of Demand and Supply. Types of Demand (Joint Demand, Derived Demand and Composite Demand).

   A basic understanding of the law of demand and supply in which demand and supply schedules are to be used to explain the demand and supply curves. The individual demand and supply curves must be distinguished from market demand and supply curves. Determinants of demand and supply are to be specified. Exceptions to the law of demand are to be discussed.

   Elasticity of demand and elasticity of supply
   Meaning, types; percentage, method of measuring elasticity of demand and elasticity of supply, Factors affecting elasticity of demand and elasticity of supply.

   The concept of price elasticity of demand and supply are to be explained with percentage method. The factors affecting the elasticity of demand and supply are to be specified. (Simple numericals should be taught)

2. Factors of Production: Basic Concepts
   Factors of production- Land, Labour, Capital and Entrepreneur.

   Land- meaning and characteristics, functions and its importance, factors affecting productivity of land.

   Destruction of ecosystem due to changing patterns of land use, migration, industrialization, shifting cultivation, dwelling units, mining, urbanization, construction of dams, etc.

   Labour- meaning and characteristics. Division of labour - meaning, types, advantages and disadvantages. Efficiency of labour- meaning, reasons for low efficiency of Indian labour.

   Capital - meaning, types and characteristics. Capital formation - meaning, factors affecting capital formation.

   Entrepreneur - meaning, functions and role of entrepreneurs in economic development.

3. Alternative Market Structures: Basic Concepts
   Nature and structure of markets- Perfectly competitive market, Monopoly market, monopolistically competitive market, concept of product differentiation, Monopsony market.

   The main features of the following market structures are to be discussed in the context of present business scenario–

   Perfectly competitive market, Monopoly market, monopolistically competitive market,

   Monopsony market (meaning to be highlighted).

4. The State and Economic Development
   The role of State in promoting development; the instruments of State intervention- fiscal policy and monetary policy; The Public sector enterprises - their role and problems; the issue of privatization of public enterprises.

   A basic understanding of the role of the State in the economy needs to be highlighted in the context of Indian economy. The meaning of fiscal policy. Direct and Indirect Taxes (meaning, merits and demerits), Types of Taxes (progressive, regressive, proportional and degressive- meaning with examples). Monetary Policy – meaning only. Public sector - its role and problems. Reasons for Privatization.
5. Money and Banking: Basic Concepts

Money: meaning, functions of Money; Inflation - meaning, effects of inflation on the functioning of the economy (in brief). Banking: Commercial Banks - functions; Central Bank - functions; quantitative and qualitative credit control measures adopted by RBI.

A basic understanding of the concepts of money, its functions. Meaning and types of inflation to be discussed (Creeping, Walking, Running and Hyper-inflation). The impact of inflation on various economic entities such as debtors and creditors, fixed income groups and producers are to be explained very briefly. Functions of commercial banks and functions of RBI - qualitative and quantitative controls used by the RBI as part of its credit control measures should be explained.

NOTE: IT IS SUGGESTED THAT CASE STUDIES MAY BE DISCUSSED ON THE FOLLOWING TOPICS-

- Factors of Production
- Banking
- Inflation

INTERNAL ASSESSMENT – 100 Marks

Candidates will be required to do a minimum of four assignments during the year, as assigned by the teacher.

Suggested list of assignments:

1. Take a fast moving consumer good (FMCG) like washing machine detergent. Analyze the factors that determine the demand of this product. Present your findings in form of a class presentation.

2. Develop a hypothetical table of information for coffee that shows quantity demanded at various prices and supply of coffee at these prices. Draw a demand curve and supply curve and show an equilibrium price at which market is cleared of its supplies.

3. Make a list of products for which you think demand is price inelastic and price elastic. Specify the reasons you may think relevant for your analysis.

4. Take a case of public enterprise which is about to be privatized or has been recently privatized. Analyze the pros and cons of such an exercise undertaken by the government. (The case of VSNL or BALCO can be taken up).

5. Take a case of a nationalized bank – visit any one of its branches in your city. Analyze the main functions of this bank’s branch. Make a presentation to this effect.

6. Recently rates of interests have been reduced on all the saving instruments. Carry out a survey of 30 people in your area as to what is their reaction to this cut. The sample may consist of salaried people, business people and professionals.

7. Take a case of five FMCGs – fast moving consumer goods - bathing soaps, toothpastes, facial creams, shampoos, ball pens. Analyze as to how the market for these products is characterized by product differentiation.

8. Take the case of a company and analyze the production process in which all the factors that you studied in your class, are used by the company to produce a product.

EVALUATION

The project work is to be evaluated by the subject teacher and by an External Examiner. The External Examiner shall be nominated by the Head of the school and may be a teacher from the faculty, but not teaching the subject in the relevant section/class. For example, a teacher of Economics of Class XI may be deputed to be the External Examiner for Class X Economic Applications project work.

The Internal Examiner and the External Examiner will assess the candidate’s work independently.

Award of marks (100 marks)

Subject Teacher (Internal Examiner): 50 marks
External Examiner: 50 marks

The total marks obtained out of 100 are to be sent to the Council by the Head of the School.

The Head of the School will be responsible for the entry of marks on the mark sheets provided by the Council.
### INTERNAL ASSESSMENT IN ECONOMIC APPLICATIONS - PROPOSED GUIDELINES FOR MARKING WITH GRADES

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Preparation</th>
<th>Procedure</th>
<th>Observation</th>
<th>Inference</th>
<th>Presentation</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grade I</strong></td>
<td>Excellent choice of firm, appropriate to project; clear identification of aspect to study; good research.</td>
<td>Originality and relevance; creative, rational and structured thinking; effective model; good questionnaire.</td>
<td>Systematic record of data; good arrangement of data; independent market survey; creative representation.</td>
<td>Information fitted correctly to model; work indicates understanding, good comprehension of subject.</td>
<td>Methodical, precise and clear expression; neat and tidy presentation; optimum utilisation of skills.</td>
<td>4 marks for each criterion</td>
</tr>
<tr>
<td><strong>Grade II</strong></td>
<td>Relevant choice of firm; identified aspect to study; adequate research.</td>
<td>Originality and structured thinking; adequate framing of questions; good insight.</td>
<td>Able to record data, but not step-by-step; able to grasp information; independent market survey.</td>
<td>Can judge and grasp information correctly; conclusion quantitatively evaluated.</td>
<td>Work neat and tidy and clearly presented; methodical and appropriate techniques used.</td>
<td>3 marks for each criterion</td>
</tr>
<tr>
<td><strong>Grade III</strong></td>
<td>Adequate choice of firm; some idea of what to study; some information gathered.</td>
<td>Records information correctly but lacks originality; independent framing of questions.</td>
<td>Assistance required in presenting, recording and arranging data; can conduct market survey.</td>
<td>Requires some assistance to relate data to model; able to relate to economic scenario.</td>
<td>Reasonably clear but work disorganised in places; writing untidy in places.</td>
<td>2 marks for each criterion</td>
</tr>
<tr>
<td><strong>Grade IV</strong></td>
<td>Firm selected but continuous assistance required for collection of information.</td>
<td>Unable to form a correct model; requires assistance to prepare questionnaire.</td>
<td>Tends to make mistakes in organising data; some ability to conduct market survey.</td>
<td>Assistance required in order to grasp the relevant and validity of information; tends to make errors.</td>
<td>Sequence of work acceptable but not very neat; poor presentation.</td>
<td>1 mark for each criterion</td>
</tr>
<tr>
<td><strong>Grade V</strong></td>
<td>Lack of perception of the subject and objective; lack of effort.</td>
<td>Not able to comprehend concept of a model; unable to prepare questionnaire even with assistance.</td>
<td>Faulty survey and mistakes in data; not able to proceed even with assistance.</td>
<td>Cannot process results; faulty conclusions in spite of assistance provided.</td>
<td>Data presentation untidy and disorganised; effort and initiative lacking.</td>
<td>0 marks for each criterion</td>
</tr>
</tbody>
</table>
ECONOMICS (64)

Aims:
1. To acquire the knowledge of terms, facts, concepts, trends, principles, assumptions, etc. in Economics.
2. To develop familiarity with the basic terminology and elementary ideas of Economics.
3. To acquire knowledge of contemporary economic problems and to appreciate the efforts being made to solve these problems.
4. To develop an understanding of the Nation’s physical and human resources and how to avoid their misuse.
5. To understand the various economic processes that help in improving our standard of living.
6. To acquire skills in interpreting simple statistical data.

CLASS IX

There will be one paper of two hours duration carrying 80 marks and Internal Assessment of 20 marks.

The paper will be divided into two sections A and B.

Section A will consist of compulsory questions requiring short answers and will cover the entire syllabus.

Section B will consist of questions, which will require detailed answers. There will be a choice and candidates will be required to answer four questions from this section.

1. Understanding an Economy

   A basic understanding of economic problems. Definitions of economics - Marshall, Robbins, Samuelson (No characteristics and comparisons). An understanding of the following concepts: wealth, capital, value, price, utility, production, consumption, factors of production, micro and macro-economics (meaning of terms with examples)

   (ii) Basic problems of an economy: What to produce? How to produce? For whom to produce? For whom to produce? Efficient use of resources; economic growth. The concept of production possibility curve.

   A brief introduction to basic problems of an economy - what to produce? how to produce? For whom to produce? Needs to be emphasized, irrespective of types of economy. An explanation of how economics as a subject helps us to allocate scarce resources in an efficient manner to be given. The concept of economic growth to be explained through production possibility curve. Comparison between economic growth and economic development should be dealt with briefly.


   A basic understanding of the features of capitalistic, socialistic and mixed economies is required. The meaning and classification of economies into developing and developed is to be explained. In this context, the characteristics of Indian economy must be explained.

2. Role of Public Distribution System:


   Meaning of Food security, causes of Food shortage, solutions for food shortage by Government and Co-operatives (Role of Food Corporation of India, minimum support price, issue price, buffer stock, PDS, RPDS and TPDS – a brief introduction only).
New schemes of PDS – 2000 onwards (to be mentioned only).

Critical appraisal of Public Distribution System.

Role of co-operatives in Food Distribution System to be explained with examples.

3. Industry

Interdependence of agriculture and industry; need for rapid industrialization; small-scale and cottage industries; their importance, problems and measures taken to develop them; need for industrial development in India.

The importance of industry and agriculture in terms of their complementarities for accomplishing the target rates of economic growth is to be emphasized. The need for rapid industrialization is to be explained with special reference to solve the problems of unemployment and poverty in India. The role and problems of cottage and small-scale industries need to be analyzed along with the measures taken to tackle such problems. The need for faster industrial development in India is to be discussed in the light of globalization and liberalization.

Impact of industrial practices on the ecosystem.

Mining, industries, energy generation, automobiles, urbanisation leading to defacement of land, deforestation, deterioration of hydrological resources.

Industrial waste: mining operations, cement factories, oil refineries, construction unit.

Spoilage of landscape, pollution, health hazards, effect on terrestrial, aquatic (fresh water and marine) life.

Measures to check the ecosystem.

Improving efficiency of existing technologies and introducing new eco-friendly technologies.

Methods of safe disposal of waste - segregation, dumping, composting, drainage, treatment of effluents before discharge.

Abatement of pollution.

Air: setting standards and implementing them, using technical devices to reduce pollution.

4 Poverty and Unemployment

Meaning of Poverty-line. Causes of poverty; poverty-alleviation programmes; nature of unemployment; causes of unemployment, measures to check unemployment.

Meaning of Poverty line should be explained in terms of calorie intake and with reference to the latest statistical figure about the percentage of population in India living below poverty line. Meaning of Absolute and Relative Poverty to be explained with examples. The causes of poverty and the government’s poverty alleviation programs (2000 onwards) to be highlighted.

Meaning, types and causes of unemployment; Measures taken by the government to solve unemployment problem after 2000.

5. Improvement in Human Capital- Health and Education.

Advantages and disadvantages of a large population – Improvement in human capital – changes in the structure of the society due to health and education (literacy rate and life expectancy since 1971).

Women and child welfare -

Understanding the importance of women and child healthcare, perceiving the need to empower and include women in decision making, birth control devices, and immunization programs.
INTERNAL ASSESSMENT

The minimum number of assignments:

Three assignments as prescribed by the teacher.

Suggested Assignments

- Study a local firm/industry or any economic institution like a bank, a telephone exchange, transport corporation. Visit the same and explain its size, mode of functioning and importance to the local or national economy.
- Conduct a survey of the locality to find out the working and non-working population and the extent of unemployment.
- Suggested case study on Bhopal Gas Tragedy or Chernobyl Disaster.
CLASS X

There will be one paper of two hours duration carrying 80 marks and Internal Assessment of 20 marks.

The paper will be divided into two sections A and B.

Section A will consist of questions requiring short answers and will cover the entire syllabus. There will be no choice of questions.

Section B will consist of questions which will require detailed answers. There will be a choice and candidates will be required to answer four questions from this section.

1. The Productive Mechanism
   - Factors of production — Land, labour, capital and entrepreneur: their impact on the production structure in an economy.

Factors of production
1. Land: meaning and characteristics, functions and its importance; factors affecting productivity of land.
2. Labour: meaning and characteristics; division of labour: meaning, types, advantages and disadvantages; efficiency of labour; meaning, reasons for low efficiency of Indian labour.
3. Capital: meaning, types and characteristics; Capital Formation; meaning, factors affecting capital formation; reasons for slow growth rate of capital formation.
4. Entrepreneur: meaning, functions and role of entrepreneur in economic development.

2. Theory of Demand and Supply
   (i) Meaning of Demand and Supply
      Law of demand and supply: demand and supply schedule and curve (both individual and market); movement and shift of the demand and supply curve; determinants of demand and supply; exceptions to the law of demand.
      The concept of Demand, types of demand and concept of supply are to be explained (with examples).

   (ii) Elasticity of demand and elasticity of supply: meaning, types, percentage method of measuring elasticity of demand and elasticity of supply, factors affecting elasticity of demand and supply.
      The concept of price elasticity of demand and elasticity of supply are to be explained with percentage method. Factors affecting the elasticity of demand and supply are to be specified. (Numerical problems are not for testing).

3. Public Finance
   (i) Meaning and scope of Public Finance; Public Revenue; Taxes, types: direct and indirect taxes with their merits and demerits; Progressive, Proportional, Regressive and Degressive taxes (only meaning).
      Explanation of the concepts of direct and indirect taxes along with examples. Comparison of the direct and indirect taxes with reference to their respective merits and demerits. Only an introduction to the concepts of progressive, proportional, regressive and degressive taxes is to be given to the students.

   (ii) Public Expenditure:
      Meaning, and reasons for growth of public expenditure in recent times.

   (iii) Public Debt:
      Meaning and types of public debt.
4. **Money and Banking**

   (i) Money: Barter system. Evolution of Money, meaning and functions of Money; Inflation-meaning, types: effects of inflation on the functioning of the economy (in brief).

   *A basic understanding of the inconvenience of Barter system and evolution of money. Meaning and Functions of money, Meaning of inflation and its variants - cost-push, demand-pull, creeping, walking, running and hyperinflation are to be given (No graphs required). The impact of inflation on various economic entities such as producers creditors, debtors, fixed income groups are to be explained briefly.*

   (ii) Banking: Commercial Banks: functions; credit creation (in brief); Nationalisation vs. Privatisation of Banks. Central Bank: functions; Quantitative and Qualitative credit control measures adopted by RBI.

   *An explanation of functions of a commercial bank and the meaning of credit creation is needed (process not required). Types of qualitative and quantitative controls used by the RBI as part of its credit control measures are to be explained.*

5. **Consumer Awareness:**

   *Ways in which consumer is exploited. Reasons for exploitation of consumers. Growth of consumer awareness – consumer rights – Legal measures available to protect consumers from being exploited – (COPRA, RTI).*

   *Understanding the importance of educating consumers of their rights - awareness of food adulteration and its harmful effects.*

**INTERNAL ASSESSMENT**

**The minimum number of assignments:**

Three assignments as prescribed by the teacher from the syllabus.

**EVALUATION**

The assignments/project works are to be evaluated by the subject teacher and by an External Examiner.

(The External Examiner may be a teacher nominated by the Head of the school, who could be from the faculty, but not teaching the subject in the section/class. For example, a teacher of Economics of Class XI may be deputed to be an External Examiner for Class X, Economics projects.)

The Internal Examiner and the External Examiner will assess the assignments independently.

**Award of marks (20 Marks)**

Subject Teacher (Internal Examiner) 10 marks
External Examiner 10 marks

The total marks obtained out of 20 are to be sent to the Council by the Head of the school.

The Head of the school will be responsible for the entry of marks on the mark sheets provided by the Council.

**Suggested Assignments**

- Find out about various quality marks for various products to prevent adulteration e.g. ISI, AGMARK.
## INTERNAL ASSESSMENT IN ECONOMICS - GUIDELINES FOR MARKING WITH GRADES

<table>
<thead>
<tr>
<th>Grade</th>
<th>Preparation/Research</th>
<th>Information</th>
<th>Observation</th>
<th>Inference</th>
<th>Presentation</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Follows instructions with understanding. Masters research techniques easily. Reference work is orderly.</td>
<td>A good deal of relevant matter. Uses wide range of sources.</td>
<td>Systematic record of data; good arrangement of data; creative representation.</td>
<td>Work indicates understanding, good comprehension of subject.</td>
<td>Methodical, precise and clear expression; neat and tidy presentation; optimum utilisation of skills.</td>
<td>4</td>
</tr>
<tr>
<td>II</td>
<td>• Follows instructions but needs a little help in research techniques. Reference notes quite orderly.</td>
<td>• Selects matter relevant to context. • Limited use of references/sources.</td>
<td>Able to record data correctly.</td>
<td>Can judge and grasp information correctly; conclusion quantitatively evaluated.</td>
<td>Work neat and tidy and clearly presented; methodical and appropriate techniques used.</td>
<td>3</td>
</tr>
<tr>
<td>III</td>
<td>• Follows instructions but needs constant guidance. • Reference notes at times disorderly.</td>
<td>• Relevant matter but limited reference work. Matter is sketchy.</td>
<td>Assistance required in presenting, recording and arranging data.</td>
<td>Requires some assistance to grasp the relevance and validity of information; able to relate to economic scenario.</td>
<td>Reasonably clear but work disorganised in places; writing untidy in places.</td>
<td>2</td>
</tr>
<tr>
<td>IV</td>
<td>• Struggles with research methods and needs constant guidance. • Reference notes copied without reference to keywords.</td>
<td>• Hardly any reference material. • Use of irrelevant matter. Matter is quite sketchy.</td>
<td>Tends to make mistakes in organising data.</td>
<td>Assistance required in order to grasp the relevance and validity of information; tends to make errors.</td>
<td>Sequence of work acceptable but not very neat; poor presentation.</td>
<td>1</td>
</tr>
<tr>
<td>V</td>
<td>• Cannot follow instructions. • Works ‘blindly’ without reference to keywords.</td>
<td>• No reference work/copied from other textbooks/sketchy matter.</td>
<td>Makes mistakes in organizing data; not able to proceed even with assistance.</td>
<td>Cannot process results; faulty conclusions in spite of assistance provided.</td>
<td>Data presentation untidy and disorganised; effort and initiative lacking.</td>
<td>0</td>
</tr>
</tbody>
</table>
Aims:
1. To develop and integrate the use of the four language skills i.e. listening, speaking, reading and writing for the purpose of effective communication.
2. To develop a functional understanding of the grammar, structure and idiom of the language.
3. To develop the capacity to read efficiently and access information effectively.
4. To develop an appreciation of good literature.
5. To experience, through literature, the thoughts and feelings of the people of the world.

There will be two papers: Paper 1. English Language; Paper 2. Literature in English.

Each of these papers will be of two hours duration.

Paper 1: English Language  (80 Marks)
Internal Assessment  (20 Marks)

Paper 2: Literature in English  (80 Marks)
Internal Assessment  (20 Marks)

PAPER 1 -- ENGLISH LANGUAGE
(Two hours) - 80 marks

Five questions will be set, all of which will be compulsory.

Question 1: Candidates will be required to write a composition of about 300–350 words from a choice of subjects which will test their ability to: organise, describe, narrate, report, explain, persuade or argue, present ideas coherently with accuracy and precision, compare and contrast ideas and arrive at conclusions, present relevant arguments and use correct style and format.

The subjects will be varied and may be suggested by language or by other stimuli such as pictures. The subjects will be so chosen so as to allow the candidates to draw on first-hand experience or to stimulate their imagination.

With one subject, a number of suggestions about the content of the composition will be given, but the use of the suggestions will be optional and a candidate will be free to treat the subject in any way that he/she chooses.

The organisation of subject matter, syntax, punctuation, correctness of grammatical constructions and spelling will be expected to be appropriate to the mode of treatment required by the subject.

Question 2: Candidates will have to write a letter from a choice of two subjects requiring either a formal or an informal mode of treatment. Suggestions regarding the content of the letter may be given. The layout of the letter with address, introduction, conclusion, etc., will form part of the assessment. Special attention must be paid to the format of the letter with emphasis on vocabulary appropriate to the context.

Question 3: Candidates will be given a specific situation and will be required to:
(a) Write the text for a notice based on given directions.
(b) Write an e-mail on the same content as the notice.

Question 4: An unseen prose passage of about 450 words will be given. Uncommon items of vocabulary, or structure will be avoided. One question will be set to test vocabulary. Candidates will be required to show an understanding of the words/phrases in the context in which they have been used.

A number of questions requiring short answers will also be asked on the passage. These questions will test the candidates’ ability to comprehend the explicit content and organisation of the passage and to infer information, intention and attitude from it.

The last question will consist of a summary that will test the candidates’ ability to distinguish main ideas from supporting details and to extract salient points to re-write them in the form of a summary. Candidates will be given clear indications of what they are to summarise and of the length of the summary.

Question 5: There will be a number of short answer questions to test the candidates’ knowledge of functional grammar, structure and use of the language.

All the items in this question will be compulsory. They will consist of correct use of prepositions, verbs and transformation of sentences.
**PAPER 2 – LITERATURE IN ENGLISH**

(Two hours) - 80 marks

Candidates will be required to answer five questions from **ONLY three** of the prescribed textbooks, one of which must be drama, one prose and one poetry.

**Prose and Drama**

Questions set will be central to the text. Candidates will be required to show that they have understood the passage and are able to clearly give their interpretation of the questions set, which should be in their own words and relevant to the text.

Excerpts may be given from the prose and drama texts leading to questions on the specific book.

**Poetry**

A poem, or passages from poems, will be given and questions will be set to test the candidates’ response to the poem. The questions will focus on the content, understanding and the personal response of candidates to the poem as a whole.

**NOTE:** *The Class X - ICSE examination paper will be set on the entire syllabus prescribed for the subject.*

*The Class IX internal examination is to be conducted on the portion of this syllabus that is covered during the academic year.*

*The Council has not prescribed bifurcation of the syllabus for this subject.*

**Note:** For list of prescribed text-books see Appendix-I.

**INTERNAL ASSESSMENT**

**Paper 1 - English Language**

1. Schools will prepare, conduct and record assessments of the **Listening and Speaking Skills** of candidates as follows:
   - **Class IX:** Three assessments in the course of the year.
   - **Class X:** Two assessments in the course of the year.

2. **Pattern of Assessment.**
   a) **Listening Skills**
   A passage of about 300 words is read aloud by the examiner *twice*, the first time at normal reading speed (about 110 words a minute) and the next time at a slower speed. Candidates may make brief notes during the readings. They then answer an objective type test based on the passage, on the paper provided.

   The recommended number of candidates at a sitting is 30.

b) **Speaking Skills**

Each candidate is required to make an oral presentation for about two minutes, which will be followed by a discussion on the subject with the examiners, for about three minutes.

Subjects for presentation may include narrating an experience, providing a description, giving directions how to make or operate something, expressing an opinion, giving a report, relating an anecdote or commenting on a current event.

A candidate may refer to brief notes in the course of the presentation but reading or excessive dependence on notes will be penalized.

It is recommended that candidates be given an hour for preparation of their subject for presentation and that they be given a choice of subject, on a common paper.

**Evaluation**

The assessment will be conducted jointly by the subject teacher and the external examiner who will each assess the candidate. (The External Examiner may be a teacher nominated by the Head of the School who could be from the faculty **but not teaching the subject in the section/class**. For example, a teacher of English of Class VIII may be deputed to be an External Examiner for Class X).

**Award of Marks**

Listening Skills: 10 marks
Speaking Skills: 10 marks

The total marks obtained out of 20 are to be sent to the Council by the Head of the School. The Head of the School will be responsible for the entry of marks, on the mark sheets provided by the Council.

Schools are required to maintain a record of all assessments conducted in **Listening and Speaking Skills** for candidates of Classes IX and X. These include copies of the assessment tests, topics for presentation and marks awarded. The record will be maintained for a period of 2 months after the ICSE (10) examinations of the candidates concerned.

**Paper 2 - Literature in English**

Schools will set, assess and record written assignments by the candidates as given below:
**Class IX:** Two or three assignments of approximately 300 to 400 words each.

**Class X:** Two or three assignments of reasonable length (not exceeding 1500 words in total).

**SUGGESTED ASSIGNMENTS**

Assignments should be based on the prescribed textbooks on the following lines:

(i) Character/thematic analysis;

(ii) Socio-economic, cultural, historical relevance / background;

(iii) Summary / paraphrase.

(iv) Appreciation of literary qualities.

(v) Identifying with a character. Putting oneself in the place of a character in given circumstances and explaining one’s actions.

(vi) Imagine alternative outcomes or endings in a literary piece and the effect on all concerned.

The texts selected for Class IX for Internal Assessment would be different from those selected for Class X.

**EVALUATION**

The assignments/projects are to be evaluated by the subject teacher and by an external examiner. (The External Examiner may be a teacher nominated by the Head of the school, who could be from the faculty, but not teaching the subject in the section/class. For example, a teacher of English of Class VIII may be deputed to be an External Examiner for Class X, English projects.)

The Internal Examiner and the External Examiner will assess the assignments independently.

**Award of marks (20 Marks)**

Subject Teacher (Internal Examiner) 10 marks

External Examiner 10 marks

The total marks obtained out of 20 are to be sent to the Council by the Head of the school.

The Head of the school will be responsible for the entry of marks on the mark sheets provided by the Council.

Schools are required to maintain a record of all assignments, duly assessed, for a period of 2 months after the ICSE examinations of the candidates concerned.
## INTERNAL ASSESSMENT IN ENGLISH LANGUAGE-GUIDELINES FOR MARKING WITH GRADES - AURAL ASSIGNMENT
### (CLASSES IX & X)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Understanding/ Comprehension Main Idea, Central Theme</th>
<th>Recall</th>
<th>Vocabulary</th>
<th>Context/ Correlation to Other Areas</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>The candidate accurately understands the central idea of the passage as well as the relevant points in the selected passage/ talk.</td>
<td>The candidate recalls all the important points made (written/ verbal).</td>
<td>The candidate uses appropriate and correct vocabulary while recalling the points made.</td>
<td>The candidate clearly understands the context and can widely correlate the passage to the other areas.</td>
<td>3</td>
</tr>
<tr>
<td>II</td>
<td>The candidate gives ideas fairly close to the central / main idea of the passage as well as understands some of the relevant points heard in the selected passage/ talk.</td>
<td>The candidate recalls some of the important points made (written/ verbal).</td>
<td>The candidate uses correct but simple vocabulary while recalling the points made.</td>
<td>The candidate can moderately understand the context of the passage and can moderately correlate the passage to the other areas.</td>
<td>2</td>
</tr>
<tr>
<td>III</td>
<td>The candidate cannot fully comprehend the passage and gives only a few ideas related to the central theme of the passage.</td>
<td>The candidate recalls very few of the important points made (written/verbal).</td>
<td>The candidate makes various errors in vocabulary while recalling the points made.</td>
<td>The candidate can only faintly understand the context of the passage and relate it to the other areas.</td>
<td>1</td>
</tr>
<tr>
<td>IV</td>
<td>The candidate is neither able to understand the central/main idea of the passage; nor able to understand relevant points heard in the passage/talk.</td>
<td>The candidate is unable to recall the important points made (written/verbal)</td>
<td>The candidate uses incorrect vocabulary while recalling the points made.</td>
<td>The candidate is unable to understand the context of the passage and is unable to correlate the passage to the other areas.</td>
<td>0</td>
</tr>
<tr>
<td>Grade</td>
<td>Fluency of Language</td>
<td>Subject Matter</td>
<td>Organization</td>
<td>Vocabulary/ Delivery</td>
<td>Understanding</td>
</tr>
<tr>
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<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>I</td>
<td>Speaks with fluency and has full operational command over the language.</td>
<td>Matter is relevant, rich in content and original.</td>
<td>Content is well sequenced and well organized.</td>
<td>Uses appropriate vocabulary and pronounces words correctly.</td>
<td>While speaking, the candidate emphasizes the important points.</td>
</tr>
<tr>
<td>II</td>
<td>The candidate speaks with fairly good fluency and has reasonable operational command of the language.</td>
<td>The subject matter is mostly relevant, consisting of a few original ideas.</td>
<td>The content is satisfactorily sequenced and well organized.</td>
<td>The candidate pronounces most words correctly and uses simple vocabulary.</td>
<td>While speaking, the candidate emphasizes most important points.</td>
</tr>
<tr>
<td>III</td>
<td>The candidate speaks with poor fluency and does not communicate except for the most basic information.</td>
<td>The subject matter is irrelevant and lacks originality.</td>
<td>The subject content is very poor and lacks organisational structure.</td>
<td>The candidate pronounces many words incorrectly and uses inappropriate vocabulary.</td>
<td>While speaking, the candidate emphasizes some important points.</td>
</tr>
<tr>
<td>IV</td>
<td>The candidate cannot communicate even the most basic information.</td>
<td>The subject matter is negligible.</td>
<td>The subject content comprises of mere words with no structured sentences.</td>
<td>The candidate is unable to correctly pronounce most words and has a limited vocabulary.</td>
<td>While speaking, the candidate is unable to emphasize important points.</td>
</tr>
<tr>
<td>Grade</td>
<td>Understanding of Text (Narrative)</td>
<td>Examples from Text</td>
<td>Understanding of text-Interpretation and Evaluation</td>
<td>Appreciation of Language, Characterization</td>
<td>Critical Appreciation - Personal Response</td>
</tr>
<tr>
<td>-------</td>
<td>----------------------------------</td>
<td>-------------------</td>
<td>---------------------------------------------------</td>
<td>--------------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>I</td>
<td>The candidate demonstrates expertise in giving an appropriate account of the text, with well-chosen reference to narrative and situation.</td>
<td>The account is suitably supported by relevant examples from the text.</td>
<td>The candidate understands the text with due emphasis on interpretation and evaluation.</td>
<td>The candidate appreciates and evaluates significant ways (structure, character, imagery) in which writers have achieved their effects.</td>
<td>The candidate is able to effectively reflect personal response (critical appreciation) to the text.</td>
</tr>
<tr>
<td>II</td>
<td>The candidate demonstrates a high level of competence in giving an account of the text, with appropriate references to the narrative and situation.</td>
<td>The account is supported by examples from the text.</td>
<td>The candidate understands text with some emphasis on interpretation and evaluation.</td>
<td>The candidate appreciates and evaluates significant ways in which writers have achieved their effects.</td>
<td>The candidate is able to reflect a personal response to the text.</td>
</tr>
<tr>
<td>III</td>
<td>The candidate demonstrates competence in giving an account of the text with some reference to the narrative and situation.</td>
<td>The candidate understands the text and shows a basic recognition of the theme and can support it by a few examples.</td>
<td>The candidate recognizes some aspects of the text used by authors to present ideas.</td>
<td>The candidate recognizes some of the significant ways in which the writers have used the language.</td>
<td>The candidate is able to communicate a personal response, which shows appreciation.</td>
</tr>
<tr>
<td>IV</td>
<td>The candidate gives a broad account of the text with reference to the narrative and situation.</td>
<td>The candidate understands the basic meaning of the text.</td>
<td>The candidate relates the text to other texts studied.</td>
<td>The candidate recognizes differences in the way authors write.</td>
<td>The candidate communicates a straightforward personal response to the text.</td>
</tr>
<tr>
<td>V</td>
<td>The candidate is unable to demonstrate an understanding of the basic events in the text.</td>
<td>The candidate is unable to understand the text or support it with any examples.</td>
<td>The candidate is unable to relate the text to the other texts studied.</td>
<td>The candidate is unable to recognize the differences in the way authors write.</td>
<td>The candidate is unable to give a personal view of the text studied.</td>
</tr>
</tbody>
</table>
ENVIRONMENTAL APPLICATIONS (89)

(Candidates offering Environmental Science are not eligible to offer Environmental Applications.)

Aims:

1. To acquire knowledge of the origin and functioning of the natural system and its correlation with the living world.
2. To develop an understanding that human beings, plants and animals are part of a natural phenomenon and are interdependent.
3. To appreciate influence of human activity on the natural processes.
4. To develop awareness of the need and responsibility to keep the natural system in a condition that it sustains life.
5. To develop sensitivity in personal attitudes to environmental issues.
6. To develop a keen civic sense.
7. To develop a sense of responsibility and concern for welfare of the environment and all life forms which share this planet.
8. To develop a sound basis for further study, personal development and participation in local and global environmental concerns.
9. Understand 'development' to intervene in the relationships between society and the natural environment.
10. To participate in local issues through carefully monitored projects.
11. To create awareness about the role of local communities in sustainable growth.
12. To develop an understanding of how local environments contribute to the global environment.

CLASS IX

There will be one written paper of two hours duration carrying 100 marks and Internal Assessment of 100 marks.

The paper will have two Sections:

Section A (Compulsory) will contain short answer questions covering the entire syllabus.

Section B will consist of questions, which will require detailed answers. There will be a choice of questions in this section.

THEORY – 100 Marks

1. Introduction

To give a broad introduction to the current environmental problems. To highlight the magnitude of these problems and to learn to appreciate the complexity of the issues involved. This is to be done through-

• presenting facts and statistics.
• inter-linking facts to generate a broad perspective.
• understanding frameworks and systems that contribute to the problem under study.

Our main environmental problems

(i) Understanding ecosystems- threats and conservation measures.

Major causes of ecosystem destruction. The extent of forest cover left in India and the world today. For instance, India is left with about 4.6% protected forest cover. The rate of destruction. Efforts being undertaken to save the forests. Names of some organisations which are involved and understanding of conservation measures. Examples of successful cases.

(ii) Resource depletion.

The consequences of major resources being depleted. Use of local and international examples. For example, petroleum products are likely to last only a few more decades.

(iii) Waste generation.

Issues of waste generation and disposal. A few prominent examples like dumping of nuclear waste and other hazardous wastes in developing countries by developed countries. Basel convention.
(iv) Economic disparities.

The extent of poverty in India and in the world. The nature of poverty in developed countries and developing countries - in rural and urban areas. Consequences and implications with reference to the lifestyles and aspirations of communities and society. Developmental paradigms and the politics of poverty.

(v) Land use.


2. Basic Ecology

To give a clear understanding of ecological concepts. The learning will be enhanced if live examples are used with as many outdoor classes as possible.

(i) Biotic and abiotic components of an ecosystem.

Classification. Understanding role.

(ii) Food chains, food web and trophic levels.

To understand the use of these tools as a means of understanding ecosystems.

(iii) Ecological niche, habitat and microhabitat.

The criticality of the role of each species in an ecosystem. The difference between habitat and microhabitat.

(iv) Succession.

How forests regenerate. Kinds of succession - primary and secondary.

(v) Ecotypes.

The influence of external factors like climate and soil (micro habitat) on organisms.

(vi) Flow of energy through an ecosystem.

Sun as the primary source of energy. Linear flow of energy versus cyclical flow of nutrients.

(vii) Concept of species.

To understand the sovereignty of species. The importance of critical minimum size of species population.

(viii) Extinction of species.

Effects of extinction.

(ix) Introduced species.

The impact of introduced species on indigenous species and ecosystems - competition, habitat destruction, diseases etc., e.g. Acacia, Subabul, Lantana.

(x) Endemic species.

Inter-relationship with other organisms, their evolution, the extreme adaptability to local environments.

(xi) Keystone species.

Understanding that while all species have a niche, some species play a more critical role as they are keystone species, e.g. crocodile, sharks, fungi.

(xii) Kinds of ecosystems.

Study a range of ecosystems, the life that they support, their uniqueness, etc.

Suggested Activities/Visits:

• Visit a surviving ecosystem and do a rapid assessment.

• Study natural communities of your neighbourhood like bird, insect population, etc.

3. Conservation of Ecosystems

(i) Conservation strategies:

• Species approach including CITES.

• Ecosystem approach including formation of National parks, sanctuaries and Biosphere reserves.

• Wildlife management.

What is the extent of forest cover left in the world? What are the threats faced by forests? What are the different kinds of strategies that are being used to conserve forests? The above three are broad examples. Students should be made aware of the scope and limitation of the above approaches. Study an example of each kind.
(ii) Value of bio-diversity.

Study the value of bio-diversity from different viewpoints - ecological, economic, health, food and aesthetic.

**Suggested Activities/Visits:**
- Visit to a national park /any protected area.
- Interaction with a group involved in conservation.

4. Dynamics of Development and Resource Use

**Understanding development**

(i) People as resources.

To gain an understanding that most development issues arise due to not recognising people as valuable resources. **Importance of generating employment.**

(ii) Impact of scale and kind of technology on resources.

Understanding the model of modern development and the impact of industrialising and automating on the economy, people and resources. **Short-term and long-term accounting. Depletion of resources. Resource scarcity and economic consequences.**

(iii) Urbanisation and its impact.

**Causes and consequences of rapid, unplanned urbanisation - impact on infrastructure, services and provision of basic amenities.**

(iv) Ecological footprint of a city.

**Study two sample cities to see the extent of ecological impact on surroundings and also the actual extent of resource supply to the city. Extent of waste generated in a city in a day. Ratio of biodegradable and non-biodegradable matter. The need to sort garbage. E.g. Chennai generates 3500 tons of garbage a day of which only 800 tons is non bio-degradable. Dumping of hazardous wastes particularly in developing countries. The Basel convention.**

(v) Population (questioning Malthus, carrying capacity).

*Self-explanatory.*

(vi) Poverty

**Dynamics of urban and rural poverty, relationship to social structure - the dynamics of the decline of traditional opportunities and occupations.**

**Suggested Activities/Visits:**
- Visit a rehabilitation site.
- Visit NGOs working in the field of development.

5. Understanding Land use

(i) Agriculture.

(a) Traditional farming methods.

**Study a few traditional methods of farming - region specific and crop specific. Management of commons. Farming as an activity of the whole community.**

(b) Traditional varieties and their adaptability to local environments.

**Study characteristics of a few sample crops drawn from different climatic and soil conditions.**

(c) The impact of green revolution practices.

**Study the impact of green revolution practices on soil, water, local crop varieties, food production, economy, small farmers and distribution using Punjab as an example; contribution to food security.**

(d) Food scarcity in the midst of plenty.

To understand and analyse the distribution system.

**Suggested Activities/Visits:**
- Visit to a modern chemical farm and an organic farm.
- Visit the wholesale market.
- Understand the flow of grain from farmer to the shop.

(ii) Towards a world without hunger

(a) Introduction to new and old organic farming practices.
- Do nothing farming – Fukuoka.
- Bio-dynamic farming - Rudolph Steiner.
- Permaculture – Mollison.
- Integrated farming practices.
- Low Input Sustainable Agriculture (LISA).

Study the different farming practices - possibly through visits - if possible by growing crops on small patches of land.

(b) Assessment of Biotechnology.

Is biotechnology the answer to the various environmental issues around food production or is it yet another technological disaster waiting to happen.

(c) Global food security, food aid.

How to achieve food security?

Is food aid the right answer?

Is sustainable agriculture and subsistence farming the answer to the problem of food security - or is it necessary to achieve a judicious balance of the above with monocropping for building a national buffer of food grains.

Suggested Activities/Visits:

- Try farming in small plots using different practices.

INTERNAL ASSESSMENT- 100 Marks

Students are recommended to complete two case studies and one project from the list given below.

Suggested list of Projects/Case studies for topics from the syllabus-

Basic Ecology

Projects

(i) Where have all the sparrows gone?

Sparrows used to be one of the most common birds in India and are disappearing at a phenomenal rate across the country as has been recorded by various groups. Why has this happened? What could be the reason? They seemed pretty adaptive creatures and have inhabited human dwellings for a long time.

A study will help understand the fragility of a species’ existence on earth and the various conditions that could make it disappear.

(ii) Why conserve turtles?

Turtles have managed to survive for 200 million years and are now on the brink of extinction. Development of the last few decades has brought about this situation.

Studying this will help the student understand the reasons for the disappearance of turtles- the main reason being trawling and trawlers are not merely killing turtles.

Trawling is ravaging ocean ecosystems and creating under sea deserts. It will also help understand the role of turtles in ocean ecosystems.

There is also much north- south politics around conservation like the Tuna dolphin issue and the shrimp - turtle issue.

(iii) Importance of green areas in a city.

(iv) Importance of mangroves.

Case Study

Study different kinds of existing ecosystems like the Sundarbans, the Sholas, rainforests, scrub forests, etc. for the bio-diversity they contain and the pressures they face. (Preferably an ecosystem that is nearby.)

Conservation of Ecosystems

Projects

(i) Zoos as places for conservation of species.

(ii) Insects as keystone species.

(iii) How can I conserve a piece of land in my neighbourhood?

(iv) Understand the conflict with the usage of CITES - Dolphins and Tuna, Turtles and Shrimp, Norway, Japan and whales, culling elephants in Africa, etc.

(v) Project Tiger, Project Elephant

(vi) The study of plight of Jarawas in the Andamans [Tribals and their relationship to the environment].

(vii) Protecting and conserving forests, rivers, oceans, etc; strategies, difficulties.

(viii) Is there effective legislation for addressing the environmental concerns?
Dynamics of Development and Resource use

Project
Conduct a study of a selected area.

Case Studies
(i) NGO /peoples groups working with impact of large projects and/or human rights issues.
(ii) Assessing the impact of women's mobilisation and empowerment.
(iii) Child labour reports.
(iv) Development in a tribal region.
(v) Sourcing of livelihood in a traditional community.
(vi) Comparative studies.

When a student finds it too difficult to understand a context very different from his own, it becomes valuable to generate parameters by which one’s own context may be compared to that which one is studying. Alternately, it is possible to choose two related / opposite / parallel contexts and assess them through the same parameters. For example, if one is studying the usage of income in different economic classes, it is possible to compare expenditure on the basis of-

• primary requirements like food, shelter and clothing;
• entertainment;
• travel;
• buying of utility and luxury items;
• health;
• educational facilities;
• services, etc.

(vii) Consumer group reports.

Understanding Land Use

(a) Agriculture

Case Studies
(ii) Alternatives to PDS like the targeted PDS.
(iii) Starvation in Orissa & Andhra Pradesh.
(iv) Agricultural practices of a small and large farmer.

(b) Towards a world without hunger

Project
Is bio-technology the answer to the world’s food problems?

Case Studies
(i) The case of Bt Cotton.
(ii) Terminator and traitor technology.
(iii) The case of golden rice.
(iv) Bio-piracy.

Mapping - What I can do

By the end of the year the students would have gained exposure to various environmental issues. It is important for them to find personal solutions to many of the problems as this will empower them to find creative solutions to larger issues and the learning can be solution centred rather than problem centred. There are many areas listed which fall within the students’ scope of intervention. The students can be invited to choose the areas they would like to invest in.

(i) In my home.
   a. Energy consumption - projects to minimise, eliminate, use alternate sources.
   b. Fossil fuel usage - minimise, use public transport, cycle.
   c. Water consumption.
   d. Sourcing food items - organic, farmer, small retailer, large corporation and supermarket.
   e. Sourcing clothes - handloom, mass produced machine loom goods, branded products, imported clothing, and designer wear.

This is just a sample list to show possible personal initiatives.

(ii) In my school.
   a. Carrying out paper audits.
   b. Minimising or avoiding plastic altogether.
   c. Making school a litter free zone or plastic free zone.
   d. Planting and taking care of trees, herb gardens, vegetable gardens.
   e. Maintaining patches of land.
(iii) *In my neighbourhood.*

a. Help in teaching under-privileged children.

b. Work with preventive health care and basic first aid.

c. Sanitation- learning about and promoting low cost decentralised systems.

d. Rainwater harvesting- setting up pits.

e. Separation of garbage - vermicomposting of bio-degradable waste.

f. Spread awareness of the four R’s -Reduce, Reuse, Recycle, Refuse.

g. Care for neighbourhood animals - Rabies shots, deworming, feeding, etc.
CLASS X

There will be one paper of two hours duration carrying 100 marks and Internal Assessment of 100 marks.

The paper will have two Sections:

Section A (Compulsory) will contain short answer questions covering the entire syllabus.

Section B will consist of questions, which will require detailed answers. There will be a choice of questions in this section.

THEORY – 100 Marks

I. Caring for our Basic Resources

(i) Caring for our Soil

(a) Causes and consequences of soil erosion.

* Study improper land use, deforestation, overgrazing, etc and also the impact of soil erosion on food production, generation of wastelands, silting of waterways and dams.

(b) Soil conservation strategies.

* Contour bunding.
* Tree breaks.
* Check dams.

A study of solutions and their applicability. Examples such as Auroville’s work and Tarun Bharat Sangh’s work.

(c) Fuel wood crisis.

* To develop an understanding in students that a very large section of Indians still use firewood as fuel, the impact it has on nature in terms of a fast dwindling resource and the pressure put on surviving forests. Impact on health of the poor, particularly women, from inhaling the smoke.

(d) Waste generation - its toxicity and its impact on life and land.

* The politics of waste dumping, the unmanageable wastes that we generate, leaching of toxins from land fills into water bodies, agricultural lands, and issues around incinerating waste.

(e) Treatment of wastes:

* Effluent treatment plants.
* Biological treatment.
* Strategies to reuse waste.

Evolving solutions to treat wastes. The scope and limitation of end of the pipe treatment.

* Combating deforestation.
* JFM, community forestry.

(f) Alternatives to timber

Design solutions-alternate materials, etc.

Suggested Activities/ Visits:

* Visit an industry to study waste generated and waste treatment.
* Make models of Chula for reduced firewood consumption.
* Model of solar cooker.
* Setting of compost pit.

(ii) Caring for our Air

(a) Technical methods to control air pollution.

* Electro static precipitators, cyclone separators, wet scrubber, bag filters, fluid bed boilers.

(b) Strategies to reduce air pollution -

* Economic
  * Penalties and subsidies, Bubble theory.
* Technical
  * Hybrid vehicles, alternate fuels, alternate energy vehicles.
* Traffic management
  * Study of Curitiiba in Brazil, synchronised signals, use of lanes, one way roads, etc.
(c) Legislation as a means to reduce air pollution.

The role of law in controlling and reducing pollution with examples like the Taj Mahal trapezium, Delhi city, etc.

(d) Remote sensing satellites and their applications.

Why is it such a good tool? What can it be used for?

(e) International norms on air pollution.

What are the International norms on air pollution? How are they drawn? Limitations with the implementing.

Example: Euro 1, Euro 2.

Suggested Activities/ Visits:

- Visit to a pollution control board.
- Interaction with an NGO working in the field of environment.

(iii) Caring for our Water

(a) Techniques of watershed management

Conserving water bodies; Study of indigenous examples like the Eri system of Tamil Nadu or Rajasthan’s traditional systems and newly evolving modern techniques of water management; Ramsar convention.

(b) Rain water harvesting.

- Roof water harvesting through percolation pits etc.
- Water harvesting in rural areas through check dams, bunds etc.

The need for the above and the scope.

(c) Small dams vs. large dams.

An analysis - can many small dams replace a large dam? Do large rivers require large dams only?

Issues around large dams.

Scope and limitation of small dams.

Other possibilities like Micro hydel, Mini hydel, run off the river.

(d) Water recycling.

The scope of water recycling and importance.

(e) Alternatives to existing sewage treatment like dry compost toilets.

Decentralised answers to centralised ones, Use of decomposed night soil as a fertiliser as in China.

Suggested Activities / Visits

- Carry out rain water harvesting in the neighbourhood.
- Visit a catchment area of the city.
- Visit to a nearby dam.

2. Resource use

(i) Impact of globalisation on environment.

Understanding the basic intention of globalisation; the possibility and challenge of a global economy; impact of globalisation on developing countries - increased disparities, national debt and recession; impact on human resources and natural resources.

(ii) Role of NGOs in sustaining environment.

Study the work of a few NGOs.

Choose an international, national and a local NGO working in different areas - issue based, women’s collectives and child welfare organisations.


What does sustainability mean?

GDP vs Growth paradox. (Questioning the notion that increase in power will bring about economic growth and this in turn will alleviate poverty.)

How to integrate the principle of sustainability in development?

Gandhi’s model of decentralised governance like Panchayati Raj.

A study of a few working examples like Khadi, Dastkar, Auroville, Gandhi gram.
(iv) North- South divide.

Patterns of resource use in the North and the South and the impact they have on the environment of both the regions.

**Suggested Activities / Visits**

- Visit to a Khadi production center or other such units.

3. Appropriate Eco friendly Technologies

(i) Scope and limitation of indigenous technology and modern technology.

Study an industry like fishing and/or weaving - where both technologies are practised.

(ii) Need for developing intermediate and appropriate technology.

To be studied through the analysis of the power sector - the limitation of all conventional sources and the scope of alternate energy sources.

(iii) Developing least cost options.

Environment Impact Assessments (EIA), their role including impacts while planning and the method to develop least cost options.

Dynamics of implementation.

Scope of grass root upward planning rather than trickle down planning.

(iv) Natural resource accounting.

What is natural resource accounting? How to go about it? - Basic understanding with the aid of examples.

**Suggested Activities / Visits**

- Visit a modern power plant.

- Visit a village with traditional occupation like weaving, pottery, etc.

- Visit a Bio-gas plant.

4. Initiatives I can take

(i) In my local environment.

(ii) In my future career choice.

(iii) In supporting initiative in my State or Country.

By the end of Class X, the student must have a working understanding of the broad impact that his/her personal decisions can have on the environment and on society. The implications of such an understanding are that:

- the student is responsible for choices made.

- he/she is capable of mobilising responses to things that happen into meaningful and productive action.

- in whatever career context the student may function in later life, there is scope for applying environmental sensitivity.

- there is a clear connectedness to people and a capacity to interpret processes and decisions in society and governance and its impact on people.

This can be brought about by discussions in class or facilitated through any other empowering process.

**INTERNAL ASSESSMENT – 100 Marks**

Students are recommended to complete two case studies and one project from the list given below.

Suggested list of Projects/ Case studies for topics from the syllabus –

1. **Caring for our Basic Resources**

   (i) **Caring for our soil**

   **Projects**

   - How can a society produce less waste?
   - Examine the problem of plastic.
   - Setting up a safe plastic disposal system in a city.
   - What are toxic wastes?
   - Should oceans act as waste dumps?

   **Case Studies**

   - Tarun Bharat Sangh's work in Alwar.
   - Case study of Anna Hazare's work in Ralegoan Siddhi.
   - Auroville's afforestation effort.
• Environmental effects of mining, brick industry.
• Use of resources in a city. Compare with the resources used in a rural community.
• India’s growing population problem - a critical analysis.

(ii) Caring for our Air

Projects
• Monitor pollution in busy traffic places.
• Role of vehicles in causing respiratory health problems.
• Is better public transport an answer to reducing air pollution in cities?

Case Studies
• Generating power through burning garbage - is it a good way of dealing with garbage?
• Medical waste disposal through incineration - is there an option?
• Can pollution be reduced by better city planning [one way lanes, synchronized signals etc].
• Bhopal gas tragedy.
• Chernobyl tragedy.

(iii) Caring for our Water

Project
• Is water being wasted through the modern sewage disposal system in cities?

Case Studies
• Water shortage in Kerala and Chirapunji.
• Rajasthan's water conservation systems.
• Salt water intrusion.
• Ground water depletion.
• Contamination of surface water.
• Laws relating to rain water harvesting in cities.

• The politics of water sharing like the Cauvery issue.
• Narmada issue.
• The Tehri dam issue.
• The three gorges project in China.

2. Resource Use

Projects
• Assess the impact of any movement related to displacements or violations.
• Look at Governmental and Non-Governmental supports to promote local initiative in the area of sustainable growth.

Case Studies
• Reports by NGOs on Globalisation impacts.
• Captive minds captive lives – Vandana Shiva.
• The unseen worker – National Foundation of India.
• Excerpts from E.F. Schumacher’s work “small is Beautiful”.
• Voluntary action and Gandhian approach – D.K. Oza.
• J.C. Kumarappa’s writing.
• Gandhi’s writings.

3. Appropriate Eco friendly Technologies

Projects
• Can Non-conventional sources meet the growing demand for power?

Case Studies
• Dr. A.K.N. Reddy’s work in creating a network of villages in Tumkur district based on appropriate technologies.
• MNES publications.

Guidelines for evaluating Project Work

The project has to be evaluated for the efficacy of the following steps:
1. Coming up with a clear question or problem statement, which will be the basis of the student’s project research. This is critical because without a clear question the research tends to be broad and unfocussed, with the student tending to gather whatever information is available rather than what they need to have.

Criteria of evaluation for this stage will therefore include definition in terms of the focus and clarity of the question.

2. Formulating an action plan, which states the steps to be taken to move the question forward.

Criteria of evaluation for this stage will include how pragmatically the plan takes the question forward.

3. Gathering primary data

50% - 70% of information gathered needs to be primary data i.e., data gathered by the student by going into the field.

This may involve evolving a questionnaire for social issues and formats for ecology related projects. Sample size and type have to be adequate and scrutinized carefully.

Criteria of evaluation for this stage will therefore be based on quantum of fieldwork and efficacy of sampling.

4. Secondary data

Secondary data from books, Internet and other publications is used only as a basis to substantiate, analyse and to construct an argument.

Criteria of evaluation for this stage will therefore include appropriate choice and use of secondary data.

5. Collating data and generating solutions

This phase after the gathering of the data is one of stock taking i.e. putting together of information. The data is then analysed and the solutions generated. The initial project report is put together.

Criteria of evaluation for this stage will therefore include sifting and organisation of relevant data, complexity of analysis in terms of number and relevance of parameter chosen and feasibility and innovation of solutions generated.

6. Project Report

The research the student does is submitted as a project report comprising of the following:

i. Statement of the topic, issue or problem being studied / researched.

ii. Statement of the action plan.

iii. Presentation of data using different methods such as bar charts/ pie diagram etc. A clear distinction has to be made between primary and secondary data.

iv. Analysis of data.

v. Solutions offered.

vi. Personal learning for the student.

vii. Bibliography and acknowledging resource persons.

Criteria of evaluation for this stage will therefore include readability, precision, neatness and indexing.

Therefore the evaluation is on-line and does not base itself entirely on the project report.

7. VIVA-VOCE (Optional)

A viva may be conducted with the subject teacher and an External Examiner who could be another teacher from the school itself or an experienced person from the environmental field, preferably a researcher.

The purpose of the viva is to give the student an opportunity to converse with an expert in the field regarding his / her project. This would help to deepen the learning for the students and help them understand the lacunae in their thinking and process.
Guidelines for evaluating Case Studies

Case studies unlike projects are not based on primary data but entirely on secondary data mostly about a particular event or case.
The student presents it as a report about 1500 words long. It may be evaluated for:

- Comprehensiveness;
- Accuracy;
- Range of sources;
- Inferences drawn;
- Connections made;
- Perspective gained, etc.

Marks may be awarded on the following break up:

<table>
<thead>
<tr>
<th>Project</th>
<th>Case studies</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>20</td>
<td>50</td>
</tr>
</tbody>
</table>

EVALUATION

The assignments/project work is to be evaluated by the subject teacher and by an External Examiner. The External Examiner may be a teacher nominated by the Head of the school, who could be from the faculty, but not teaching the subject in the section/class.
The Internal Examiner and the External Examiner will assess the assignments independently.

Award of marks (100 marks)

Subject Teacher (Internal Examiner): 50 marks
External Examiner:                             50 marks

The total marks obtained out of 100 are to be sent to the Council by the Head of the school.
The Head of the school will be responsible for the entry of the marks on the mark sheets provided by the Council.
## INTERNAL ASSESSMENT IN ENVIRONMENTAL APPLICATIONS - GUIDELINES FOR MARKING WITH GRADES

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Preparation</th>
<th>Investigation/Gathering Data</th>
<th>Analysis/Inference</th>
<th>Solutions Alternatives/ Innovations</th>
<th>Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade I  (4 marks)</td>
<td>Follows instructions with understanding; modifies if needed. Background information correct. Level of awareness high.</td>
<td>Is able to ask correct questions. Knows whom to ask, when and how. Can deal with more than one variable.</td>
<td>Analyses systematically. Can see sequences or correlation. Can segregate fact from opinion.</td>
<td>Innovative ideas presented. Alternatives suggested.</td>
<td>Accurate. Feasible, neat, well labelled diagrams. Index and references given.</td>
</tr>
<tr>
<td>Grade III (2 marks)</td>
<td>Follows simple instructions only. Awareness basic. Background information sketchy.</td>
<td>Needs help with the investigations. Has suggestions but cannot decide.</td>
<td>Observation - help needed. Needs guidance to see correlations or sequence.</td>
<td>Obvious solutions presented. Not innovative.</td>
<td>A bit disorganised, but neat and accurate. Either index or references missing.</td>
</tr>
<tr>
<td>Grade IV (1 mark)</td>
<td>Follows some instructions but confused. Has to be made aware. Background information incorrect in places.</td>
<td>Needs to be told what questions to be asked, whom to ask or where to gather the data from.</td>
<td>Detailed instructions required to draw inferences. Charts have to be made.</td>
<td>Thinks of solutions under guidance.</td>
<td>Poorly organised. Some points missing. Index and references missing.</td>
</tr>
<tr>
<td>Grade V (0 mark)</td>
<td>Confused about instructions. Has to be made aware. Needs help with background information.</td>
<td>Gets stuck at every step. Questionnaire has to be formulated.</td>
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<td>Solutions not forthcoming.</td>
<td>Overall impression very poor. Not very accurate.</td>
</tr>
</tbody>
</table>
ENVIRONMENTAL SCIENCE (82)

(Candidates offering Environmental Applications are not eligible to offer Environmental Science.)

The subject deals with the interdependence of living things within their environment and provides an insight into the orderly interplay of factors influencing environmental change. The impact of human demands on renewable and non-renewable resources and the limited availability of these resources in nature, have been linked to correlate with patterns of human behaviour necessary to evolve a sustainable environmental paradigm.

**Aims:**

1. To acquire knowledge of the origin and functioning of the natural system and its correlation with the living world.
2. To develop an understanding that human beings, plants and animals are part of a natural phenomenon and are interdependent.
3. To appreciate the influence of human activity on natural processes.
4. To develop an awareness of the need and responsibility to keep the natural system in a condition that it sustains life.
5. To develop sensitivity in personal attitudes to environmental issues.
6. To develop an understanding of how local environments contribute to the global environment.
7. To develop a sense of responsibility and concern for welfare of the environment and all life forms which share this planet.
8. To develop a keen civic sense.
9. To develop a sound basis for further study, personal development and participation in local and global environmental concerns.

**CLASS IX**

There will be one paper of two hours duration carrying 80 marks and Internal Assessment of 20 marks.

The paper will have two Sections:

**Section A** (Compulsory) will contain short answer questions covering the entire syllabus.

**Section B** will contain six questions. Candidates will be required to answer any four questions from this section.

1. **Understanding our Environment**
   (a) What is Environmental Science?
   *What do we understand by ‘Environment’? What does the study of Environmental Science involve?*
   
   (b) What are our main environmental problems?
   *Environmental problems to be studied in terms of resource depletion, pollution and extinction of species.*
   
   (c) A global perspective of environmental problems.

2. **Living things in Ecosystems**
   (a) What is an ecosystem?
   *Concept of ecosystems to be explained; biotic and abiotic structures, organisms and species; populations, communities.*
   
   (b) Habitat and ecological niche.
   *To be discussed in terms of address and function.*
   
   (c) How species interact with each other.
   *Interaction of species should be covered in terms of - predation, competition, parasitism,*
mutualism and commensalism. Law of Limiting Factors; synergisms.

(d) Adapting to the environment.

Evolution by natural selection; co-evolution, extinction.

3. How Ecosystems work

(a) Energy flow in ecosystems.

An explanation of how life depends on the sun; who eats what; respiration: burning the fuel. Energy transfer: food chains, food webs and trophic levels.

(b) The cycling of materials.

The water cycle, the carbon cycle (how humans are affecting the carbon cycle) and the nitrogen cycle; Not to be tested, for knowledge and understanding only.

Interdependence of natural cycles.

(c) How ecosystems change.

Succession- secondary and primary.

4. Kinds of Ecosystems

(a) Forests.

Tropical rainforests and threats to rainforests; temperate rainforests; temperate deciduous forests; Taiga.

(b) Grasslands, Deserts and Tundra.

Tropical savannas; temperate grasslands: prairies, steppes and pampas; deserts; Tundra. Threats to the temperate grasslands, deserts and Tundra.

(c) Freshwater ecosystems.

The study to cover - lakes and ponds; wetlands - marshes and swamps; rivers. Threats to wetlands and rivers must also be highlighted.

(d) Marine ecosystems.

Estuaries, coral reefs, oceans and how each is threatened should be discussed. Polar ecosystems of the Arctic and the Antarctic and the threats to them must also be covered.

Only threats to the specifically mentioned ecosystems will be tested for the purpose of the examination. The rest are for knowledge and understanding.

(e) Biogeographic zones of India.

The different biogeographic zones/ regions of India and predominant wildlife in these zones/ regions.

5. Water

(a) Our water resources.

Water resource in the form of frozen solid in polar ice caps, surface water (rivers of controversy, dams), groundwater (aquifers running low). Solutions to water shortages must be covered in terms of desalting the sea, towing water, water conservation and water harvesting.

(b) Freshwater pollution.

Point pollution and non-point pollution; wastewater treatment plants, pathogens. The manner in which water pollution affects ecosystems; artificial eutrophication, thermal pollution. Cleaning up water pollution. The special problem of groundwater pollution; bottled water.

(c) Ocean pollution.

How pollutants get into oceans; preventing ocean pollution; who owns the oceans?

6. Air

(a) What causes air pollution?

Air pollution due to - natural disasters; domestic combustion; air pollution on wheels; industrial air pollution.

Major air pollutants - carbon monoxide, oxides of nitrogen, oxides of sulphur, ozone, lead, hydrocarbons, benzene and particulates - their sources, health effects and the environmental effects must be studied.

Classification of air pollutants based on composition - gaseous pollutants and particulate matter (grit, dust, smoke and lead oxide); broader classification - primary and secondary pollutants.
Aerosols (smog), sources – natural (continental, oceanic and anthropogenic); their effect on our lives.

Air pollution episode - the Bhopal gas tragedy.

(b) Thermal inversions, photochemical smog and acid precipitation.

Thermal inversions (Los Angeles), Photochemical Smog (Mexico City) and Acid Precipitation (Mumbai) - how acid precipitation affects ecosystems.

(c) Impact of air pollution.

Impact of air pollution should be covered in terms of economic losses, lowered agricultural productivity and health problems.

7. Atmosphere and Climate

(a) The atmosphere.

Balance between photosynthesis and respiration; layers of the atmosphere. Not to be tested, for knowledge and understanding only.

(b) Climate.

What determines climate (latitude, atmospheric circulation patterns, ocean circulation patterns, local geography, seasonal changes in climate). Not to be tested, for knowledge and understanding only.

(c) Greenhouse earth.

The Greenhouse Effect, rising carbon dioxide levels, GHGs and the earth’s temperature (global warming); effect on weather, agriculture and sea-levels; slowing the temperature change.

(d) The Ozone layer.

Ozone in the troposphere, ozone in the stratosphere; detection of the damage to the ozone layer; causes and consequences of ozone thinning; alternatives to CFCs.

8. Soil and Land

(a) Deforestation.

Causes and consequences of rapid and progressive deforestation in the developing world - fuel crisis, competition for land, land exploited for cash and food crops, population pressures, increasing demand for timber to meet the needs of the developed world, grazing and its link with desertification.

Effects of deforestation on climate, atmosphere and soil process.

(b) Soil erosion and desertification.

Causes and consequences of soil erosion and desertification - removal of vegetation, overgrazing, overcultivation, clearance of slopes, drought, heavy rainfall, bad farming practices.

(c) Land pollution.

Causes and consequences of land pollution - salinization, fertilizers, pesticides, toxic wastes, nuclear wastes, domestic wastes, ground water contamination.

9. People

(a) World poverty and gap between developed and developing countries.

Dimensions of world poverty and gap between developed and developing countries using development indicators such as per-capita incomes, housing, levels of disease and nutrition.

(b) Poverty in developed countries, poverty in developing countries.

Rural poverty and urban poverty.

(c) The implications of poverty trap for the environment in developing countries.

Self-explanatory.

10. Urbanisation

(a) Causes of urbanisation.

The push-pull factors to be discussed.

(b) Manifestations of urbanisation.

Growth of slums, growth of informal sector, pressure on civic amenities; degradation of human resources; growing sense of despair.

(c) Social, economic and environmental problems.

Problems of housing, congestion, pollution, loss of agricultural land and provision of services to be covered.
11. Agriculture

(a) Unsustainable patterns of modern industrialised agriculture.

*Monocultures, disappearance of traditional crop varieties, pollution risk due to use of pesticides and inorganic fertilizers; problems of irrigation – surface and ground water.*

(b) Environmental damage due to large farm units.

*Self-explanatory.*

(c) Food mountains in developed countries.

*Surplus and waste.*

(d) The Green Revolution.

*Discussion on whether Green Revolution is a success or a failure.*

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**INTERNAL ASSESSMENT**

Any one project/assignment from the prescribed syllabus.

**Suggested Assignments**

1. Make a survey of any one threat to the local environment with suggestions as to how the impact of the threat could be gradually reduced.

2. Make a functional model of an apparatus/equipment that could be used to alleviate the impact of any pollutant and, make a survey to study the effectiveness of this apparatus/equipment. (The report of the study is to form a part of the Project Work.)
There will be one paper of two hours duration carrying 80 marks and Internal Assessment of 20 marks. The paper will have two Sections:

**Section A** (Compulsory) will contain short answer questions covering the entire syllabus.

**Section B** will contain six questions. Candidates will be required to answer any four questions from this section.

1. **Controlling Air Pollution**
   
   (a) From domestic combustion.
   
   Reducing pollution from domestic cooking; clean cooking - kerosene as a desirable cooking fuel in rural areas.
   
   (b) From industries.
   
   Measures for controlling industrial air pollution - technological measures (energy efficient devices, clean technologies), meteorological controls; zoning strategy; penalties and subsidies; Case Study: the Taj Trapezium.
   
   (c) From vehicles.
   
   Vehicle emission control - modify engine design (catalytic converters, four stroke engines), clean fuels, public transport options, traffic management, economic policy measures.

2. **Addressing Population**
   
   (a) The link between growing population and environmental degradation.
   
   UN’s population projections for 2050, the climate link, the choice of alternative futures. Growing population in the developing countries and rising consumption in the developed countries.
   
   (b) The demographic transition.
   
   Stages of transition, transition stages of certain developed nations and developing nations (such as India, China, Korea, Malaysia). Not to be tested, for knowledge and understanding only.

3. **Managing the Urban environment**
   
   (a) Urbanisation - a challenge to the future.
   
   Sustainable cities: the need of the hour.
   
   (b) Planning environmental improvement.
   
   Efficient land use, planning energy, shelter and transport; water supply management, wastewater and sanitary waste management, construction activities.
   
   (c) Rural development to counter migration.
   
   Self-explanatory.
   
   (d) Development of secondary cities to counter migration.
   
   Self-explanatory.
   
   (e) Community participation and contribution of private enterprises.
   
   Community participation in keeping surroundings clean, participation of private enterprises in city improvement, measures to increase private enterprise participation.

4. **Managing Soil and Land**
   
   (a) Conserving soil.
   
   Erosion control techniques - terracing, contour ploughing, dry farming, tree planting, bunds, gullies, wind-breaks, use of organic fertilizers.
   
   Soil conservation techniques - land-use management, vegetative and mechanical practices, conserving soil and water together;
appropriate cropping systems – cropping patterns (strip cropping), tree crops, and foliage crops.

(b) Land reforms.
   Meaning, measures enforced in India to give land to the landless.

(c) Integrated rural development.
   Objectives, self-help schemes like social and community forestry.

(d) Role of women and community in conservation.
   Self-explanatory.

(e) Combating deforestation.
   Reforestation, energy plantations, forest harvesting of non-timber forest products, exploring alternative sources of livelihood, change in consumption patterns.

(f) Managing forest grazing.

(g) Alternatives to timber.
   Recycling of timber and paper.

5. Food
(a) Sustainable agriculture.
   Integrated pest management – understanding the term, aims, advantages, disadvantages.
   Genetically modified organisms, application in plants and animals and environmental risks.
   New crop strains – high yielding varieties and their viability, hybrid varieties.
   Mixed cropping – advantages and disadvantages; regenerative farming techniques - intercropping, crop rotation, agroforestry, polyvarietal cultivation and polyculture.
   Conservation tillage farming - meaning of conservation tillage, advantages and disadvantages.

Trickle drip irrigation – need for a trickle drip irrigation system; operation of a drip irrigation system; advantages and disadvantages.

New organic fertilizers – integrated nutrient supply programme, organic fertilizers - bulky organic manures, green manures, bio-fertilizers, and sewage sludge.

Gene banks – what are gene banks; objectives of maintaining gene banks.

(b) Problem of global food security, food aid.
   Global food imbalance, distributional inequality; role of food aid in achieving global food security.

6. Biodiversity
(a) Biodiversity at risk due to human actions.
   Reasons for loss of biodiversity; Man - the super consumer: impact of his actions on the earth’s resources; reasons for concern: economic, ecological and aesthetic.

(b) Conserving our genetic resource: in-situ and ex-situ; harvesting wildlife.
   In-situ - wildlife sanctuaries, national parks and biosphere reserves.
   Ex-situ – zoological parks, botanical gardens, gene banks in agricultural research centres and forestry institutions.
   Harvesting wildlife to meet commercial needs.

(c) Conservation strategies at national and international levels.

7. Energy
(a) Fossil fuels used to produce electricity.
   Electricity: energy on demand; dwindling supplies of fossil fuels; renewable and non-renewable energy resources. Not to be tested, for knowledge and understanding only.
(b) Nuclear energy.

*Nuclear fission, advantages and disadvantages of nuclear energy; safety concerns (the Chernobyl disaster); nuclear fusion.*

(c) A sustainable energy future.

*Energy conservation; alternative energy sources - solar energy, wind energy, hydroelectricity, geothermal energy, biomass, liquid fuels from biomass- methanol, ethanol, gasohol, CNG, hydrogen.*

8. Waste

(a) Solid waste: the throwaway society.

*Solid waste, biodegradable and non-biodegradable materials; where does the trash go - landfills and incinerators.*

(b) Solid waste: options for the future.

*Producing less waste, reusing, recycling, composting, vermiculture, biotechnology; finding alternatives to materials we use.*

9. Environment and Development

(a) Global environmental pollution.

*Who is responsible - developed or developing countries? Need for mutual cooperation.*

(b) Economic development and environmental degradation.

*Role of developed and developing countries; contrasting views of developed and developing countries; debt trap.*

(c) International trade.

*Its link to environmental deterioration – unfair trade practices.*

(d) Role of multinational corporations.

*Definition of MNCs, their contribution to development and debatable contribution to environment; case study - Bhopal gas tragedy; measures to regulate activities of MNCs in developing countries.*

10. Towards a Sustainable Future

(a) Global interdependence – economic and environmental.

*Concept of economic and environmental global interdependence; global environmental health – the shared responsibility of nations; trade and aid as ways of reducing world inequalities.*

(b) International cooperation.

*The Montreal Protocol; the Global Environmental Facility (GEF) support; the Earth Summit, UN’s International Conference on Population and Development (Cairo); the Kyoto Treaty.*

(c) Sustainable development.

*The concept of sustainable development, sustainable development and developed countries; sustainable development and developing countries.*

(d) Role of non-governmental organisations.

*Self-explanatory.*

(e) Technology that sustains.

*Satellite imagery as a means of monitoring the global environment: satellite remote sensing, advantages in collecting environmental data, applying data in areas of environmental damage as deforestation, desertification, land degradation, wastelands, mining, ozone layer depletion and predicting droughts and floods.*

*The concept of alternate technology, adopting alternate technology to create self-sustaining societies in the developed and developing world.*

*Role of biotechnology in achieving global food security.*
INTERNAL ASSESSMENT

A minimum of three assignments as prescribed by the teacher, need to be completed.

Suggested Assignments

1. Make a field study of the effect of human interaction on the natural environment and write a project report (1500 words) on the likely impact of the interaction on the global environment.

2. Prepare an original study/essay (2000 words) on an area of the prescribed curriculum that is indicative of his/her appreciation/concern for environmental issues and make a functional model to support the above.

EVALUATION

The assignments/project work are to be evaluated by the subject teacher and by an External Examiner. (The External Examiner may be a teacher nominated by the Head of the school, who could be from the faculty, but not teaching the subject in the section/class. For example, a teacher of EVS of Class VIII may be deputed to be an External Examiner for Class X, Environmental Science projects.)

The Internal Examiner and the External Examiner will assess the assignments independently.

Award of marks (20 Marks)

Subject Teacher (Internal Examiner) 10 marks
External Examiner 10 marks

The total marks obtained out of 20 are to be sent to the Council by the Head of the school.

The Head of the school will be responsible for the entry of marks on the mark sheets provided by the Council.
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Preparation</th>
<th>Investigation/Gathering Data</th>
<th>Analysis/Inference</th>
<th>Solutions Alternatives/Innovations</th>
<th>Presentation</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade I</td>
<td>Follows instructions with understanding, modifies if needed. Background information correct. Level of awareness high.</td>
<td>Is able to ask right questions. Knows whom to ask, when and how. Can deal with more than one variable.</td>
<td>Analyses systematically. Can see sequences or correlation. Can segregate fact from opinion.</td>
<td>Innovative ideas presented. Alternatives suggested.</td>
<td>Accurate. Feasible, neat, well labelled diagrams. Index and references given.</td>
<td>4 marks</td>
</tr>
<tr>
<td>Grade II</td>
<td>Follows instructions step-by-step. Awareness is good. Background information correct.</td>
<td>Is able to ask questions and identify whom to ask when and how. Can handle two variables only.</td>
<td>Makes observations correctly. Analysis fair.</td>
<td>Alternatives presented. Innovative but not practical.</td>
<td>Accurate. Neat, well labelled diagrams, index and references given.</td>
<td>3 marks</td>
</tr>
<tr>
<td>Grade III</td>
<td>Follows simple instructions only. Awareness basic. Background information sketchy.</td>
<td>Needs help with the investigations. Has suggestions but cannot decide.</td>
<td>Observation - help needed. Needs guidance to see correlations or sequence.</td>
<td>Obvious solutions presented. Not innovative.</td>
<td>A bit disorganised, but neat and accurate. Either index or references missing.</td>
<td>2 marks</td>
</tr>
<tr>
<td>Grade IV</td>
<td>Follows some instructions but confused. Has to be made aware. Background information incorrect in places.</td>
<td>Needs to be told what questions to be asked, whom to ask or where to gather the data from.</td>
<td>Detailed instructions required to draw inferences. Charts have to be made.</td>
<td>Thinks of solutions under guidance.</td>
<td>Poorly organised. Some things missing. Index and references missing.</td>
<td>1 mark</td>
</tr>
<tr>
<td>Grade V</td>
<td>Confused about instructions. Has to be made aware. Needs help with background information.</td>
<td>Gets stuck at every step. Questionnaire has to be formulated.</td>
<td>Even with help, analysis is not clear. Takes teacher's word for it.</td>
<td>Solutions not forthcoming.</td>
<td>Overall impression very poor. Not very accurate.</td>
<td>0 mark</td>
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FASHION DESIGNING (70)

Aims:
1. To provide candidates with the knowledge of various fibres and the fabrics.
2. To develop in candidates an interest in the various processes to make the best use of materials.
3. To provide candidates with the basic principles regarding the making of garments.
4. To develop in candidates a sense of appreciation and creative expression in the making of clothes.

CLASS IX

There will be one paper of two hours duration carrying 100 marks and Internal Assessment of 100 marks.

The paper will be divided into two Sections, A and B.

Section A will consist of compulsory short answer questions covering the entire syllabus.

Section B will consist of questions which will require detailed answers. There will be a choice of questions. Candidates will be required to answer four questions from this section.

PART 1: THEORY - 100 marks

1. A simple study of natural and synthetic fibres - origin, properties and how they are produced.
   A brief outline of the manufacture of fibres in fabrics; finishes which improve the properties and appearance of fabrics.

Knowledge of various types of fabrics (including blended fabrics), their choice and suitability for dressmaking and reaction under normal use.

2. The purchase of fabrics; approximate prices and estimation of quantity.
   The selection and use of supplementary materials used in the course of dressmaking.

3. Choice of clothes for an individual (of any age) in relation to figure types, style, occasion, colour, fabrics and climatic conditions.

PART 2: INTERNAL ASSESSMENT - 100 marks

To be assessed internally by the school - 100 Marks

Please note the guidelines for internal assessment as given for Class X.
CLASS X

There will be one paper of two hours duration carrying 100 marks and Internal Assessment of 100 marks.
The paper will be divide into two Sections, A and B.
Section A will consist of compulsory short answer questions covering the entire syllabus.
Section B will consist of questions which will require detailed answers. There will be a choice of questions. Candidates will be required to answer four questions from this section.

PART 1: THEORY - 100 marks
1. The choice, purchase, use and care of tools and equipment, including sewing machines, for dressmaking.
2. The choice and use of traditional, drafted or commercial patterns for making simple under and outer garments. This should include knowledge of figure measurements, awareness of figure problems, simple adaptation of patterns, layouts and cutting out, fitting, and the sequence or processes in assembling garments. Methods of pressing.
3. The stitches and processes used in the making of simple under and outer garments.
4. The use and making of simple or traditional designs and decorative stitchery in the construction and decoration of garments and articles.

PART 2: INTERNAL ASSESSMENT
To be assessed internally by the school - 100 marks.

Practical Work in Needlework
The minimum number of assignments for each academic year

Class IX - Five practical oriented assignments as prescribed by the teacher.
Class X - Five practical oriented assignments as prescribed by the teacher.

Suggested Assignments
(i) Needlework tools and processes:
   - Measuring and marking devices.
   - Use of scissors, needle and thread.
   - Sewing buttons, hooks and eyes, zippers.
   - Use of the sewing machine.
   - Practice in various stitches, making seams, darts, pleats, gathering, shirring, smocking, ruffles, etc.
(ii) The parts of a dress:
   - Necklines and collars.
   - Sleeves and cuffs.
   - Waistline and skirts.
   - Pockets; inside and outside.
   - Buttons and button holes.
   - Visible and invisible zippers.
(iii) Making dresses, blouses, skirts, salwar, kamiz, etc.
(iv) Sewing for the home: curtains, bedspreads, and furnishings.
(v) Sewing of children’s clothes.

Finished Work
In addition to the course work the candidates will have to produce two dresses or combinations or a set consisting of four pieces of finished needlework for the assessment by the External Examiner.

EVALUATION
The assignments/project work is to be evaluated by the subject teacher and by an External Examiner. The External Examiner may be a teacher nominated by the Head of the school, who could be from the faculty, but not teaching the subject in the section/class. For example, a teacher of Class VIII may be deputed to be an External Examiner for Class X Fashion Designing Projects.
The Internal Examiner and the External Examiner will assess the assignments independently.

Award of Marks
Subject Teacher (Internal Examiner): 50 marks
External Examiner: 50 marks
The total marks obtained out of 100 are to be sent to the Council by the Head of the school.
The Head of the school will be responsible for the entry of marks on the mark sheets provided by the Council.
# INTERNAL ASSESSMENT IN FASHION DESIGNING - GUIDELINES FOR MARKING WITH GRADES

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Planning Efficiency</th>
<th>Working to time plan</th>
<th>Manipulation</th>
<th>Quality produced</th>
<th>Appearance / Arrangement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade I</td>
<td>Follows the question set and systematically organises the work process.</td>
<td>Is successful in handling parts of the question set and fits them within required time.</td>
<td>Excellent display of manipulative skills - can deal with a laboratory situation efficiently.</td>
<td>With a special insight into the question, the quality developed is of a high standard.</td>
<td>A fine aesthetic sense and artistic ability conveyed in the complete arrangement.</td>
</tr>
<tr>
<td>(4 marks)</td>
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<tr>
<td>Grade II</td>
<td>Follows the question set except that the step by step work shows slow operational skill.</td>
<td>Is successful in handling parts of the question, but the smooth work appears to slow down.</td>
<td>Good control of manipulative skills, has been able to deal with each situation with ease.</td>
<td>The insight into the requirements of the question has been achieved and the quality is good.</td>
<td>The display of colour and equipment used gives an impression of sound organisation.</td>
</tr>
<tr>
<td>(3 marks)</td>
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</tr>
<tr>
<td>Grade III</td>
<td>Follows the question. Order of work process shows lack of co-ordination.</td>
<td>Is successful in handling the question, however the time link seems to break in some area.</td>
<td>Has been successful with the manipulative skills in parts then gradually slows down.</td>
<td>The quality has been developed well in part but the overall effect lacks some achievement.</td>
<td>The arrangement appears complete but some special details missing.</td>
</tr>
<tr>
<td>(2 marks)</td>
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<tr>
<td>Grade IV</td>
<td>Follows a part of the question, work sequence appears disorganised.</td>
<td>Is able to work only a part of the question within the time stated.</td>
<td>Begins with a control of the skills and is unable to sustain the effort.</td>
<td>Only few areas of quality are visible, which affect the total result produced.</td>
<td>Part of the arrangement is represented but the total appearance lacks finish and composition.</td>
</tr>
<tr>
<td>(1 mark)</td>
<td></td>
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</tr>
<tr>
<td>Grade V</td>
<td>Has not been able to interpret the question into proper laboratory organisation.</td>
<td>Time and work sequence is most disorganised.</td>
<td>Is unable to control and manipulate the required skills.</td>
<td>No standard of quality has been achieved due to poor understanding.</td>
<td>There has been no achievement in either the appearance or arrangement.</td>
</tr>
<tr>
<td>(0 marks)</td>
<td></td>
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HISTORY, CIVICS AND GEOGRAPHY (50)

GEOGRAPHY

H.C.G. - Paper - 2

Aims:
1. To develop an understanding of terms, concepts and principles related to Geography.
2. To explain the cause-effect relationships of natural phenomena.
3. To understand the use of natural resources and development of regions.
4. To acquire knowledge of and appreciate the interdependence of nations and different regions of the world.
5. To know the availability of resources, understand, explain their uses and appreciate the problems of development in India.
6. To understand and encourage human efforts made to conserve and protect the natural environment.
7. To acquire practical skills related to the meaning and use of maps and their importance in the study of Geography.

CLASS IX

There will be one paper of two hours duration carrying 80 marks and Internal Assessment of 20 marks.

The question paper will consist of Part I and Part II.

Part I (compulsory) will consist of two questions.

Question 1 will consist of short answer questions from the entire syllabus and Question 2 will consist of a question based on World Map.

Part II. Candidates will be required to choose any five questions.

Candidates will be expected to make the fullest use of sketches, diagrams, graphs and charts in their answers.

Questions may require answers involving the interpretation of photographs of geographical interest.

PRINCIPLES OF GEOGRAPHY

1. Our World
   (i) Earth as a planet
       *Shape of the earth. Earth as the home of humankind and the conditions that exist.*
   (ii) Geographic grid - Latitudes & Longitudes
       (a) Concept of latitudes: main latitudes, their location with degrees, parallels of latitude and their uses.
       (b) Concept of longitudes - Prime Meridian, time (local, standard and time zones, Greenwich Mean Time (GMT) and International Date Line (IDL)). Eastern and Western hemisphere.
       (c) Using latitudes and longitudes to find location. Calculation of time.
       (d) Great Circles and their use.

   (iii) Rotation and Revolution
       *Rotation – direction, speed and its effects (occurrence of day and night, the sun rising in the east and setting in the west, Coriolis effect)*
       *Revolution of the earth and its inclined axis – effects: the variation in the length of the day and night and seasonal changes with Equinoxes and Solstices.*

2. Structure of the Earth
   (i) Earth’s Structure
       *Core, mantle, crust – meaning, extent and their composition.*
   (ii) Landforms of the Earth
       *Mountains, plateaus, plains (definition, types and their formation):*  
       *Mountains – fold, residual and block.*
       *Plateaus – intermont and volcanic.*
       *Plains – structural and depositional.*
       *Examples from the world and India.*
   (iii) Rocks - difference between minerals and rocks, types of rocks: igneous, sedimentary, metamorphic, their characteristics and formation; rock cycle.
   (iv) Volcanoes
       *Meaning. Types – active, dormant and extinct.*
       *Effects – constructive and destructive.*
       *Important volcanic zones of the world.*
   (v) Earthquakes
Meaning, causes and measurement.

Effects: destructive and constructive.

Earthquake zones of the World

(vi) Weathering and Denudation

Meaning, types and effects of weathering.

Types: Physical Weathering – block and granular disintegration, exfoliation;

Chemical Weathering – oxidation, carbonation, hydration and solution;

Biological Weathering – caused by humans, plants and animals.

Meaning and agents of denudation; work of river and wind.

Stages of a river course and associated land forms – V-shaped valley, waterfall, meander and delta.

Wind – deflation hollows and Sand dunes.

3. Hydrosphere

Meaning of hydrosphere.

Tides - formation and pattern.

Ocean Currents – their circulation pattern and effects. (Specifically of Gulf Stream, North Atlantic Drift, Labrador Current, Kuro Shio and Oya Shio.)

4. Atmosphere

(i) Composition and structure of the atmosphere.

Troposphere, Stratosphere, Ionosphere and Exosphere; Ozone in the Stratosphere, its depletion. Global warming and its impact.

(ii) Insolation

• Meaning of insolation and terrestrial radiation.

• Factors affecting temperature: latitude, altitude, distance from the sea, slope of land, winds and ocean currents.

(iii) Atmospheric Pressure and Winds.

• Meaning and factors that affect atmospheric pressure.

• Major pressure belts of the world.

• Factors affecting direction and velocity of wind – pressure gradient, Coriolis Effect.

• Permanent winds – Trades, Westerlies and Polar Easterlies.

• Periodic winds - Land and Sea breezes, Monsoons.

• Local winds - Loo, Chinook, Foehn and Mistral.

• Variable winds - Cyclones and Anticyclones.

• Jet Streams- Meaning and importance.

(v) Humidity

• Humidity – meaning and difference between relative and absolute humidity.

• Condensation – forms (clouds, dew, frost, fog and mist).

• Precipitation - forms (rain, snow, and hail).

• Types of rainfall – relief/orographic, convectional, cyclonic/ frontal with examples from the different parts of the world.

5. Pollution

(a) Types - air, water (fresh and marine), soil, radiation and noise.

(b) Sources

• Noise: Traffic, factories, construction sites, loud speakers, airports.

• Air: vehicular, industrial, burning of garbage.

• Water: domestic and industrial waste.

• Soil: chemical fertilizers, bio medical waste and pesticides.

• Radiation: X- rays; radioactive fallout from nuclear plants.

(c) Effects - on the environment and human health.

(d) Preventive Measures

Car pools, promotion of public transport, no smoking zone, restricted use of fossil fuels, saving energy and encouragement of organic farming.

6. Natural Regions of the World

Location, area, climate, natural vegetation and human adaptation.

Equatorial region, Tropical grasslands, Tropical Deserts, Tropical Monsoon, Mediterranean, Temperate grasslands, Taiga and Tundra.
7. Map Work

On an outline map of the World, candidates will be required to locate, mark and name the following:

1. The major Natural Regions of the world - Equatorial, Tropical Monsoon, Tropical Deserts, Mediterranean type, Tropical grasslands, Temperate grasslands, Taiga and Tundra.

2. The Oceans, Seas, Gulfs and Straits - all Major Oceans, Caribbean Sea, North Sea, Black Sea, Caspian Sea, South China Sea, Mediterranean Sea, Gulf of Carpentaria, Hudson Bay, Persian Gulf, Gulf of Mexico, Gulf of Guinea, Bering Strait, Strait of Gibraltar, Strait of Malacca.


5. Plateaus – Canadian Shield, Tibetan Plateau, Brazilian Highlands, Patagonian Plateau, Iranian Plateau, Mongolian Plateau.

INTERNAL ASSESSMENT

PRACTICAL WORK/ PROJECT WORK

1. A record file having any three of the following exercises will be maintained. (The file will be evaluated out of 10 marks).

   (a) Uses of important types of maps.

   (b) Directions and how to identify them - an illustrative diagram.

   (c) Reading and using statement of scale, graphic scale and scale shown by representative fraction method. (No drawing work, only explaining their meanings).

   (d) Reading of one town guide map or an atlas map. (Recognising the symbols and colours used, identifying directions and distances).

   (e) Drawing and recognising forms of important contours viz. valleys, ridges, types of slopes, conical hill, plateau, escarpment and sea cliff.

   (f) Drawing at least one sketch map to organize information about visiting an important place, a zoo or a monument.

2. Candidates will be required to prepare a project report on any one topic. The topics for assignments may be selected from the list of suggested assignments given below. Candidates can also take up an assignment of their choice under any of the four broad areas given below. (The project will be evaluated out of 10 marks).

   Suggested list of Assignments:

   (a) Weather records: Maintaining and interpreting weather records as found in the newspaper for at least one season.

   (b) Collection of data from secondary sources (Using Modern techniques i.e GPS, Remote Sensing, Aerial Photography and Satellite imageries): Preparing a PowerPoint presentation on current issues like – use of earth resources/ development activities/dangers of development and ecological disasters like droughts, earthquakes, volcanoes, floods, landslides cyclones and tornadoes in the world.

   (c) Physical features: Collection of data from primary and secondary sources or taking photographs and preparing notional sketches of features found in the vicinity or areas visited during the year as a part of school activity.

   (d) Find out the sources of pollution of water bodies in the locality and determine the quality of water.

   (e) Collect information on global environmental issues and problems and communicate your findings through appropriate modes (posters, charts, collages, cartoons, handouts, essays, street plays and PowerPoint presentation).

   (f) Area Studies: Choosing any aspect from Section B (World Studies) and preparing a PowerPoint presentation or a write up on it.

   (g) Meteorological Instruments and their uses – Six’s maximum and minimum thermometer, mercury barometer, aneroid barometer, wind vane, anemometer, rain gauge and hygrometer.
There will be one paper of two hours duration carrying 80 marks and Internal Assessment of 20 marks.

The Paper will consist of two parts, Part I and Part II.

**Part I** (compulsory) will consist of two questions. Question 1 will be based on Topographical Map. Question 2 will be based on outline Map of India.

**Part II**: Candidates will be expected to answer any five questions.

Candidates will be expected to make the fullest use of sketches, diagrams, graphs and charts in their answers.

Questions set may require answers involving the interpretation of photographs of geographical interest.

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### PART – I

#### MAP WORK

1. **Interpretation of Topographical Maps**
   
a. Locating features with the help of a four figure or a six figure grid reference.

b. Definition of contour and contour interval. Identification of landforms marked by contours (steep slope, gentle slope, hill, valley, ridge / water divide, escarpment), triangulated height, spot height, bench mark, relative height/depth.

c. Interpretation of colour tints and conventional symbols used on a topographical survey of India map.

d. Identification and definition of types of scale given on the map.

   Measuring distances and calculating area using the scale given therein.

e. Marking directions between different locations, using eight cardinal points.

f. Identify: Site of prominent villages and/or towns, types of land use / land cover and means of communication with the help of the index given at the bottom of the sheet.

g. Identification of drainage (direction of flow and pattern) and settlement patterns.

h. Identification of natural and man-made features.

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2. **Map of India**

On an outline map of India, candidates will be required to locate, mark and name the following:

**Mountains, Peaks and Plateaus**: Himalayas, Karakoram, Aravali, Vindhyas, Satpura, Western and Eastern Ghats, Nilgiris, Garo, Khasi, Jaintia, Mount Godwin Austin (K2), Mount Kanchenjunga. Deccan Plateau, Chota Nagpur Plateau.

**Plains**: Gangetic Plains and Coastal plains – (Konkan, Kanara, Malabar, Coromandel, Northern Circars).

**Desert**: Thar (The Great Indian Desert)

**Rivers**: Indus, Ravi, Beas, Chenab, Jhelum, Satluj, Ganga, Yamuna, Ghagha, Gomti, Gandak, Kosi, Chambal, Betwa, Son, Damodar, Brahmaputra, Narmada, Tapti, Mahanadi, Godavari, Krishna, Cauveri, Tungabhadra.

**Water Bodies**: Gulf of Kutch, Gulf of Kambhat, Gulf of Mannar, Palk Strait, Andaman Sea, Chilka Lake, Wular Lake.

**Passes**: Karakoram, Nathu-La Passes.

**Latitude and Longitudes**: Tropic of Cancer, Standard Meridian (82° 30'E).

**Direction of Winds**: South West Monsoons (Arabian Sea and Bay of Bengal Branches), North East Monsoons and Western Disturbances.

**Distribution of Minerals**: Oil - Mumbai High (Offshore Oil Field) and Digboi. Iron – Singhbhum, Coal – Jharia.

**Soil Distribution** – Alluvial, Laterite, Black and Red Soil.

**Cities** - Delhi, Mumbai, Kolkata, Chennai, Hyderabad, Bengaluru, Kochi, Chandigarh, Srinagar, Vishakhapatnam, Allahabad.

**Population** - Distribution of Population (Dense and sparse).
PART - II
GEOGRAPHY OF INDIA

3. Location, Extent and Physical features
   • Position andExtent of India. (through Map only)
   • The physical features of India – mountains, plateaus, plains and rivers. (through Map only)

4. Climate
   Distribution of Temperature, Rainfall, winds in Summer and Winter and factors affecting the climate of the area. Monsoon and its mechanism. Seasons –March to May – Summer; June to September – Monsoon; October to November - Retreating Monsoon. December to February – Winter.

5. Soil Resources
   • Types of soil (alluvial, black, red and laterite) distribution, composition and characteristics such as colour, texture, minerals and crops associated.
   • Soil Erosion – causes, prevention and conservation.

6. Natural Vegetation
   • Importance of forests.
   • Types of vegetation (tropical evergreen, tropical deciduous, tropical desert, littoral and mountain), distribution and correlation with their environment.
   • Forest conservation.

7. Water Resources
   • Sources (Surface water and ground water).
   • Need for conservation and conservation practices (Rain water harvesting and its importance).
   • Irrigation: Importance and methods.

8. Mineral and Energy Resources
   • Iron ore, Manganese, Copper, Bauxite – uses and their distribution
   • Conventional Sources: Coal, Petroleum, Natural gas (distribution, advantages and disadvantages)
   • Hydel power (Bhakra Nangal Dam and Hirakud).
   • Non-conventional Sources: Solar, wind, tidal, geo-thermal, nuclear and bio-gas (generation and advantages).

9. Agriculture
   • Indian Agriculture – importance, problems and reforms.
   • Types of farming in India: subsistence and commercial: shifting, intensive, extensive, plantation and mixed.
   • Agricultural seasons (rabi, kharif, zayad).
   • Climatic conditions, soil requirements, methods of cultivation, processing and distribution of the following crops:
     - rice, wheat, millets and pulses.
     - sugarcane, oilseeds (groundnut, mustard and soyabeans).
     - cotton, jute, tea and coffee.

10. Manufacturing Industries
   Importance and classification
   • Agro based Industry - Sugar, Textile (Cotton and Silk).
   • Mineral based Industry – Iron & Steel (TISCO, Bhilai, Rourkela, Vishakhapatnam) Petro Chemical and Electronics.

11. Transport
   Importance and Modes – Roadways, Railways, Airways and Waterways – Advantages and disadvantages.

12. Waste Management
   • Impact of waste accumulation - spoilage of landscape, pollution, health hazards, effect on terrestrial, aquatic (fresh water and marine) life.
   • Need for waste management.
   • Methods of safe disposal - segregation, dumping and composting.
   • Need and methods for reducing, reusing and recycling waste.
INTERNAL ASSESSMENT
PRACTICAL / PROJECT WORK

Candidates will be required to prepare a project report on any **one** topic. The topics for assignments may be selected from the list of suggested assignments given below. Candidates can also take up an assignment of their choice under any of the broad areas given below.

**Suggested list of assignments:**

1. **Local Geography:**
   - (a) Land use pattern in different regions of India—a comparative analysis.
   - (b) The survey of a local market on the types of shops and services offered.

2. **Environment:**
   - Wildlife conservation efforts in India.

3. **Current Geographical Issues:**
   - Development of tourism in India.

4. **Transport in India:**
   - Development of Road, Rail, Water and Air routes.

5. List different type of industries in the States and collect information about the types of raw materials used, modes of their procurement and disposal of wastes generated. Classify these industries as polluting or environment friendly and suggest possible ways of reducing pollution caused by these units.

6. Need for industrialization in India, the latest trends and its impact on economy of India.

7. Visit a water treatment plant, sewage treatment plant or garbage dumping or vermi composting sites in the locality and study their working.

**EVALUATION**

The assignments/project work is to be evaluated by the subject teacher and by an External Examiner. (The External Examiner may be a teacher nominated by the Head of the school, who could be from the faculty, **but not teaching the subject in the section/class**. For example, a teacher of Geography of Class VIII may be deputed to be an External Examiner for Class X, Geography projects.)

The Internal Examiner and the External Examiner will assess the assignments independently.

**Award of Marks (20 Marks)**

<table>
<thead>
<tr>
<th>Subject Teacher (Internal Examiner)</th>
<th>10 marks</th>
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</thead>
<tbody>
<tr>
<td>External Examiner</td>
<td>10 marks</td>
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</tbody>
</table>

The total marks obtained out of 20 are to be sent to the Council by the Head of the school.

The Head of the school will be responsible for the entry of marks on the mark sheets provided by the Council.
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Preparation</th>
<th>Procedure/ Testing</th>
<th>Observation</th>
<th>Inference/Results</th>
<th>Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade I</td>
<td>Gives complete theoretical information using relevant geographical terms</td>
<td>States the objectives and defines the aspects to be studied.</td>
<td>Studies text and source material and makes a list.</td>
<td>States theoretical information in a coherent and concise manner using geographical terminology. Uses a variety of techniques. Shows resourcefulness. Supports investigation with relevant evidence.</td>
<td>Neatly and correctly stated statement of intent and conclusion matches with objectives.</td>
</tr>
<tr>
<td>(4 marks)</td>
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<tr>
<td>Grade II</td>
<td>Provides adequate information using appropriate terms.</td>
<td>States objectives but not the limitations of the study.</td>
<td>Makes a limited list of source material only from secondary sources.</td>
<td>Uses sound methodology-using methods suggested. Makes a valid statement about the data collected. Attempts to develop explanations using available information.</td>
<td>Limited use of reference material and a presentation, which is routine.</td>
</tr>
<tr>
<td>(3 marks)</td>
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<tr>
<td>Grade III</td>
<td>States objectives using some geographical terms but mostly in descriptive terms.</td>
<td>Only lists the aspects to be studied.</td>
<td>References are minimal.</td>
<td>Uses methodology in which selective techniques are applied correctly. Makes descriptive statement. Analysis is limited. Relates and describes systematically the data collected. Attempts to relate conclusion to original aim.</td>
<td>Simple and neat with correct placement of references, acknowledgements, contents, maps and diagrams.</td>
</tr>
<tr>
<td>(2 marks)</td>
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<tr>
<td>Grade IV</td>
<td>States intent without using relevant geographical terms but explaining them correctly.</td>
<td>Shows evidence of what to look for and how to record the same.</td>
<td>Uses methodology with some techniques but is unable to systematically record data and collect information.</td>
<td>Makes few relevant statements. Does analyze data that is not presented or tends to copy analysis available from other sources. Makes superficial conclusions. Link between the original aim and conclusion is not clear.</td>
<td>Neat but lacking in correct placement of table of contents, maps, diagrams and pictures.</td>
</tr>
<tr>
<td>(1 mark)</td>
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</tr>
<tr>
<td>Grade V</td>
<td>Does not make any use of geographical terms.</td>
<td>Has not collected any relevant data and has not presented sources correctly.</td>
<td>Does not use any logical technique and does not follow the methodology suggested.</td>
<td>Does not analyze data. Does not use the suggested methods. Makes conclusions but does not relate them to the original aim.</td>
<td>Presents the report without reference.</td>
</tr>
<tr>
<td>(0 marks)</td>
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</table>
Aims:
1. To provide an understanding of the working of the Indian government necessary for the student to grow into a responsible, enlightened citizen in a secular democracy.
2. To enrich the understanding of those aspects of Indian historical development which are crucial to the understanding of contemporary India.
3. To awaken a desirable understanding in pupils of the various streams which have contributed to the development and growth of the Indian nation and its civilisation and culture.
4. To develop a world historical perspective of the contributions made by various cultures to the total heritage of mankind.

CLASS IX

There will be one paper of two hours duration carrying 80 marks and an Internal Assessment of 20 marks.

The paper will be divided into two parts, Part I and Part II.

Part I (30 marks) will contain short answer questions set from the entire syllabus.
Candidates will be required to answer all questions.

Part II (50 marks) will consist of Section A and Section B. Candidates will be required to answer two out of three questions from Section A and three out of five questions from Section B. The sections will correspond to the sections indicated in the syllabus.

SECTION A: CIVICS

An elementary study is required of this section without verbatim study of the Constitutional Articles in detail.

1. Our Constitution

SECTION B: HISTORY

1. The Harappan Civilisation
   Sources: Great Bath, Citadel, seals, bearded man, dancing girl, dockyard, script.
   Origin, extent, urban planning, trade, art & craft, and its decline.

2. The Vedic Period
   Sources: Vedas and Epics (brief mention); Iron Artifacts and Pottery.
   Brief comparative study of Early and Later Vedic society and economy.
3. Jainism and Buddhism
   Sources: Angas, Tripitikas and Jatakas (brief mention).
   Causes for their rise in the 6th century B.C.;
   Doctrines
4. The Mauryan Empire
   Sources: Arthashastra, Indika, Ashokan Edicts,
   Sanchi Stupa.
   Political history and administration (Chandragupta
   Maurya and Ashoka); Ashoka’s Dhamma.
5. The Sangam Age
   Sources: Tirukkural and Megaliths.
   A brief study of society and economy.
6. The Age of the Guptas
   Sources: Account of Fa-hien; Allahabad Pillar
   Inscription.
   Political history and administration (Samudragupta and
   Chandragupta Vikramaditya); Contribution to
   the fields of Education (Nalanda University),
   Science (Aryabhatta) and Culture (works of
   Kalidasa, Deogarh temple)
7. Medieval India
   (a) The Cholam
      Sources: Inscriptions; Brihadishwara Temple.
      Political history and administration (Rajaraja
      I, Rajendra I).
   (b) The Delhi Sultanate
      Sources: Inscriptions; Qutab Minar.
      Political history and administration (Qutbuddin Aibak, Alauddin Khilji and
      Muhammad Bin Tughlaq).
   (c) The Mughal Empire
      Sources: Ain-i-Akbari, Taj Mahal, Jama Masjid
      and Red Fort.
      Political history and administration (Babur, Akbar
      and Aurangzeb).
   (d) Composite Culture
      Sources: Bijak, Guru Granth Sahib, Ajmer
      Sharief, St. Francis Assisi Church (Kochi).

Significance of Bhakti Movements and Sufism
(Mirabai, Sant Jnaneswar and Hazrat
Nizamuddin).
Influence of Christianity (St. Francis Xavier).
8. The Modern Age in Europe
   (a) Renaissance – definition, causes (capture of
   Constantinople, decline of Feudalism, new
   trade routes, spirit of enquiry and invention of
   the printing press) and impact on art, literature
   and science (Leonardo Da Vinci, William
   Shakespeare and Copernicus).
   (b) Reformation – causes (dissatisfaction with the
   practices of the Catholic Church and new
   learning): Martin Luther’s contribution,
   Counter Reformation.
   (c) Industrial Revolution – definition.
   Comparative study of Socialism and
   Capitalism.

INTERNAL ASSESSMENT
Any one project/assignment related to the syllabus.

Suggested Assignments
- ‘The Indian constitution protects the rights of
  children, women, minorities and weaker sections.’
  Elaborate on the basis of a case study.
- ‘Fundamental Duties complement Fundamental
  Rights.’ Illustrate with the help of a Power Point
  Presentation.
- Highlight the civic issues of your locality and what
  suggestions would you offer to address them.
- Visit a museum or local site of historical
  importance and discuss its significance.
- Discuss the art and architectural features of any of
  these monuments: Buddhist Caves, Ajanta; Iron
  Pillar, Mehrauli; Gol Gumbaz, Bijapur;
  Mattancherry Synagogue, Cochin; Kamakhya
  Temple, Guwahati; St. Thomas Basilica, Chennai;
  Tower of Silence, Mumbai.
- Make a pictorial presentation of inventions and
  innovations as a result of the Industrial Revolution.
- Make a comparative study of the Harappan and the
  Mesopotamian Civilisations.
There will be one paper of two hours duration carrying 80 marks and an Internal Assessment of 20 marks.

The paper will be divided into two parts, Part I and Part II.

**Part I** (30 marks) will contain short answer questions set from the entire syllabus.

Candidates will be required to answer all questions.

**Part II** (50 marks) will consist of Section A and Section B. Candidates will be required to answer two out of three questions from Section A and three out of five questions from Section B. The sections will correspond to the sections indicated in the syllabus.

**SECTION A: CIVICS**

1. **The Union Legislature**
   
   Meaning of the federal setup in India.
   
   
   (ii) Rajya Sabha – composition, qualifications for membership, election, term, Presiding Officer.


2. **The Union Executive**

   (a) The President:

   Qualifications for election, composition of Electoral College, reason for indirect election, term of office, procedure for impeachment.

   Powers (executive, legislative, financial, judicial, discretionary and emergency)

   (b) The Vice-President:

   Qualifications for election, term of office and powers.

   (c) Prime Minister and Council of Ministers: 

   Appointment, formation of Council of Ministers, tenure, functions - policy making, administrative, legislative, financial, emergency. Position and powers of the Prime Minister. Collective and individual responsibility of the members of the Cabinet. Distinction between the Council of Ministers and the Cabinet.

3. **The Judiciary**

   (a) The Supreme Court:

   Composition, qualifications of judges, appointment, independence of judiciary from the control of executive and legislature; Jurisdiction and functions: Original, Appellate, Advisory, Revisory, Judicial Review and Court of Record. Enforcement of Fundamental Rights and Writs.

   (b) The High Courts:

   Composition, qualifications of judges, appointment; Jurisdiction and functions: Original, Appellate, Revisory, Judicial Review and Court of Record. Enforcement of Fundamental Rights and Writs.

   (c) Subordinate Courts:

   Distinction between Court of the District Judge and Sessions Court.

   Lok Adalats: meaning and advantages.

**SECTION B: HISTORY**

1. **The Indian National Movement**

   **(1857 – 1917)**

   (a) The First War of Independence, 1857

   Only the causes (political, socio-religious, economic and military) and consequences will be tested. [The events, however, need to be mentioned in order to maintain continuity and for a more comprehensive understanding.]

   (b) Factors leading to the growth of Nationalism – economic exploitation, repressive colonial policies, socio-religious reform movements (brief mention of contribution of Raja Rammohan Roy and Jyotiba Phule) and role of the Press.

   Foundation of the Indian National Congress - the Indian National Association (Surendranath Banerjee) and the East India Association (Dadabhai Naoroji) as precursors. Immediate objectives of the Indian National Congress - the first two sessions and their Presidents should be mentioned.


2. **Mass Phase of the National Movement (1915-1947)**

(a) Mahatma Gandhi: Non-Cooperation Movement : causes (Khilafat Movement, Rowlatt Act, Jallianwala Bagh Tragedy), programme and suspension – Chauri Chaura incident and impact of the Movement; the Civil Disobedience Movement: causes (reaction to the Simon Commission, Declaration of Poorna Swaraj at the Lahore Session of 1929), Dandi March, programme and impact of the Movement, Gandhi-Irwin Pact and the Second Round Table Conference; the Quit India Movement: causes (failure of the Cripps Mission, Japanese threat), Quit India Resolution and the significance of the Movement.

(b) Forward Bloc (objectives) and INA (objectives and contribution of Subhas Chandra Bose).

(c) Independence and Partition of India – Cabinet Mission Plan (clauses only); Mountbatten Plan (clauses and its acceptance); and the Indian Independence Act of 1947 (clauses only).

3. **The Contemporary World**

(a) The First World War

*Causes (Nationalism and Imperialism, Armament Race, division of Europe and Sarajevo crisis) and Results (Treaty of Versailles, territorial rearrangements, formation of League of Nations).*

(b) Rise of Dictatorships

*Causes for the rise of Fascism in Italy and the rise of Nazism in Germany. A comparative study of Mussolini’s Fascist and Hitler’s Nazi ideologies.*

(c) The Second World War


(d) United Nations

(i) The objectives of the U.N.

*The composition and functions of the General Assembly, the Security Council, and the International Court of Justice.*


(e) Non Aligned Movement.

*Brief meaning; objectives; Panchsheel; role of Jawaharlal Nehru; Names of the architects of NAM.*

**INTERNAL ASSESSMENT**

Any one project/assignment related to the syllabus.

**Suggested Assignments**

- Compare the Parliamentary and Presidential forms of Government with reference to India and the U.S.A.
- Conduct a mock Court and record the proceedings.
- Present a life sketch and contributions of any one of the following Presidents of India –
  - Dr. Rajendra Prasad, Dr. S. Radhakrishnan and Dr. A.P.J. Abdul Kalam (or any other).

• Discuss the relevance of any one of the following films to understand the history of 20th Century Europe: The Book Thief, Schindler’s List, Escape to Victory, The Boy in Striped Pyjamas, Life is Beautiful, The Sound of Music, Gandhi (Richard Attenborough), Sardar (Ketan Mehta), Netaji Subhas Chandra Bose - The Forgotten Hero (Shyam Benegal).

• Highlight the work and achievements of any one Nobel Laureate - Malala Yousafzai or Kailash Satyarthi.

• Make a powerpoint presentation on India’s Independence and Partition.

• Make a presentation on the influence of Gandhian principles on Martin Luther King / Nelson Mandela.

• Prepare a report on the contributions of any one of the following agencies of the United Nations – UNESCO / WHO / UNICEF / ILO / UNDP / FAO.

• Present a case study of any recent human rights violations and redressal mechanisms available to prevent such instances in the future.

EVALUATION

The assignments/project work is to be evaluated by the subject teacher and by an External Examiner. (The External Examiner may be a teacher nominated by the Head of the School, who could be from the faculty, but not teaching the subject in the section/class. For example, a teacher of History of Class VIII may be deputed to be an External Examiner for Class X, History projects.)

The Internal Examiner and the External Examiner will assess the assignments independently.

Award of marks (20 Marks)

Subject Teacher (Internal Examiner) 10 marks
External Examiner 10 marks

The total marks obtained out of 20 are to be sent to the Council by the Head of the School.

The Head of the school will be responsible for the entry of marks on the mark sheets provided by the Council.
# INTERNAL ASSESSMENT IN HISTORY & CIVICS - GUIDELINES FOR MARKING WITH GRADES

<table>
<thead>
<tr>
<th>Grade</th>
<th>Preparation/Research</th>
<th>Information</th>
<th>Concepts</th>
<th>Thinking Skills</th>
<th>Presentation</th>
<th>Marks</th>
</tr>
</thead>
</table>
| I     | Follows instructions with understanding.  
       | Masters research techniques easily.  
       | Reference work is orderly. | A good deal of relevant matter.  
       | Uses wide range of sources. | Good understanding of historical concepts - sequence/reconstruction-causes and consequences-continuity and change | Different interpretations of evidence.  
       | Can draw Inferences/deductions/conclusions. | Matter presented is clear and is in coherent form (sub-headings, sections, chapters etc.)  
       | Work is neat and tidy and not over elaborate. | 4 |
| II    | Follows instructions but needs a little help in research techniques.  
       | Reference notes quite orderly. | Selects matter relevant to context.  
       | Limited use of references/sources. | Understanding of concepts is adequate. | Limited / Single interpretation of evidence with some examples.  
       | Some inferences/conclusions are drawn. | Matter is presented in coherent form but not organized into sections etc.  
       | Presentation neat and tidy but not elaborate. | 3 |
| III   | Follows instructions but needs constant guidance.  
       | Reference notes at times disorderly. | Relevant matter but limited reference work.  
       | Matter is sketchy. | Displays limited use of concepts. | Few examples/single example to support reasoning. | Work is presented in an orderly way, but not organized into sections.  
       | Work is quite neatly presented. | 2 |
| IV    | Struggles with research methods and needs constant guidance.  
       | Reference notes copied without reference to keywords. | Hardly any reference material.  
       | Use of irrelevant matter.  
       | Matter is sketchy. | Minimal competency in concepts.  
       | A few of the required concepts. | Finds it difficult to make conclusions/deductions/inferences.  
       | No examples to support reasoning. | Matter presented in a confused way at times (no sub-headings, chapters, etc.)  
       | Tendency to copy from reference books.  
       | Use of “cosmetics” to hide lack of substance. | 1 |
| V     | Cannot follow instructions.  
       | Works ‘blindly’ without reference to keywords. | No reference work/copied from other textbooks/sketchy matter. | Unable to demonstrate concepts. | Unable to make inferences/deductions or come to any conclusions. | Matter presented in an incoherent/disorganized way.  
       | Copied from textbooks “blindly”.  
       | Use of “cosmetics” to hide lack of substance.  
       | Untidy work. | 0 |
There will be one written paper of two hours duration carrying 100 marks and Internal Assessment of 100 marks.

PART I: THEORY

The paper will be divided into two Sections, A and B.

Section A will consist of questions requiring short answers and will cover the entire syllabus. There will be no choice of questions.

Section B will consist of questions requiring longer answers. Candidates will be required to answer four questions. There will be a choice of questions.

1. Concept and Scope of Home Science
   (i) Introduction to the five streams in Home Science and how they integrate to form a meaningful whole.

   (ii) Significance of the study of Home Science in day-to-day life.
   The need for studying each aspect of Home Science enables a scientific understanding of the field and allows for research in the discipline. A study of Home Science helps in the ultimate understanding of self, people and the various social, emotional, and biological factors necessary for human survival.

   (iii) Career options in Home Science.
   A discussion on various career options available for Home Science students at all levels—both self and wage employment.

2. Food and Health
   (i) Importance of food and its functions.
   The relationship between food and health; Methods of cooking foods (boiling, steaming, pressure cooking, frying, roasting and baking) – merits and demerits.

   (ii) Nutrients and their functions –
   This topic is aimed at providing a foundation for understanding the importance of nutrients such as carbohydrates, protein, fats, vitamins – water soluble (Vitamin B -Thiamine, Riboflavin and Niacin and Vitamin C) & fat soluble (Vitamin A, D, E and K); and minerals - calcium, iron and iodine; water and roughage. Functions of nutrients, food sources and deficiency diseases.

3. The Family
   (i) Family - definition, characteristics, types of family.
   Explanation of how families can differ in terms of structure. Classification of families on the basis of structure as nuclear, joint, extended or reorganized families. A definition of a family, wherein families have been conceptualized as being a way of living together intimately and sharing economic, social and emotional responsibilities. It is a way of interacting to make the decisions required for everyday life.

   (ii) Functions of a family; Significance of small family norms.
   Importance of the family – how family facilitates the psychological development of children making it possible for them to become effective members of society. It is within the family that children acquire the values, beliefs, expectations and knowledge, which constitutes its culture. It is the family that fulfills the needs of its family members. Significance of small family norms and its role – family, its members, society and nation at large.
(iii) Women and child welfare.

Understanding the role of women and child in the family. Empowering women and eradicating child labour.

4. Growth and Development of Children from Birth to Five Years

(i) Principles of development; milestones of development with respect to physical & motor, social, emotional, cognitive and language development.

This topic gives an introduction to the developmental needs of children below five years of age. The child from birth to five years is characterized by certain features of growth and development, which need to be studied in order to understand how this group of individuals function and mature. The young child differs from an adult not just in terms of physical size, but also in terms of capacities of thought, emotional understanding, social interactions and language.

(ii) Role of play and play-school for the young child.

The role of play with emphasis on holistic growth of the child. Consideration in choosing the kind of play (indoor/outdoor), play materials and play-school.

5. The Home and its Maintenance

(i) Choosing a home.

Characteristics of a good home with respect to features such as site and location, security, hygiene/sanitation, ventilation, light, and other amenities such as water, electricity and drainage.

(ii) Maintenance of house and its environment.

Sustainable use of fuel and energy with emphasis on the need and methods for the conservation of gas, water and electricity in the house; Role of sanitation and hygiene in the home and its environment.

(iii) Waste management in the home and community:

- Domestic waste and its management
- Basic classification of waste in the community.
- Basic concept of biodegradable and non-biodegradable wastes.

(iv) Need to Refuse, Reduce, Re-use, Repair, and Recycle (5 R-s) waste.

Importance and methods of five R’s. For environmental conservation, with reference to sorting out of garbage into biodegradable vs. non-biodegradable, organic vs. non-organic, plastic vs. metal at home level and extending it to the community level.

6. Selection of Clothing

(i) Types of fabric available in the market.

A brief idea about natural (cotton, silk and wool) and man-made (nylon, polyester and blended e.g. terry-cot, terry-silk, terry-wool, cotton-silk) fibres - properties and their use.

(ii) Factors influencing choice of clothing.

The general understanding that choice of clothing is influenced by factors such as appearance, comfort, durability, maintenance and cost. How clothing requirements vary with respect to age also need to be articulated.

PART II: INTERNAL ASSESSMENT

Please note the guidelines for Internal Assessment as given for Class X.
There will be one written paper of two hours duration carrying 100 marks and Internal Assessment of 100 marks.

PART I: THEORY

The paper will be divided into two Sections, A and B.

Section A will consist of questions requiring short answers and will cover the entire syllabus. There will be no choice of questions.

Section B will consist of questions requiring longer answers. Candidates will be required to answer four questions. There will be a choice of questions.

1. Home furnishing
   (i) Colour and its application.
       Dimensions of colour – hue, value and intensity. Prang colour wheel (primary, secondary and tertiary colours). Colour schemes – related (monochromatic/one hue colour, analogous /adjacent) and contrasting (complimentary, double complimentary, split complementary and triad) colour schemes and their applications in the home- living room, bed room, dining room and kitchen.
   (ii) Fabrics for furnishing
       Factors affecting selection of furnishing (curtains & draperies, carpets and upholstery) that can enhance the appearance of a room.
   (iii) Lighting in the home.
       Types of lighting (general/local & direct/indirect) Choice of adequate lighting for different rooms.
   (iv) Space Organization in the kitchen.
       Layout and planning of kitchens
       An introduction to the design of kitchen space with respect to placement of work centres for preparation, cooking, washing, service and storage for the most efficient utilization of space and saving time and energy.

2. Management of Money
   (i) Importance of budgeting and savings.
       Role of budgeting in the efficient management of money. Steps in making a budget and factors affecting a budget. An understanding of how budgeting helps in proper planning and judicious utilization of available resources. Need for saving, ways and means of saving.
   (ii) Fundamentals of banking.
       Opening and operating a bank account, types of deposit accounts: savings, recurring, current and fixed deposit account, withdrawal and deposit of cash and cheque, writing a cheque, maintaining a pass book and use of ATM.

3. Growth and Development during Middle Childhood

Milestones of development
An introduction to the changes in growth and development that take place between 5 - 12 years of age with respect to physical, social, emotional, cognitive and language development in children between five and twelve years of age.

4. Growth and Development during Adolescence
   (i) Physical growth of adolescents, pubertal changes.
       A brief introduction to the relationship of physiology and maturation during adolescence. The role of endocrine glands and their influence on physical and psychological changes during adolescence. Differences in physical maturity of boys and girls.
   (ii) Hygiene and Personal grooming during adolescence.
       Awareness on issues such as body odour, appearance of facial and body hair, acne, pimples for both boys and girls.
   (iii) Emotional concerns and behavioural patterns of adolescents.
       Introduction to the importance of emotions in influencing physical well-being and behaviour; means of dealing with emotions,
eating disorders – food fads, anorexia, bulimia and obesity. Significance of physical exercise.

(iv) Role of the family, peer group and school in the life of an adolescent.

An introduction to the interaction of the family, peer group and school for the adolescent; issues of conflict between parental values and those of the peer group. Developing good communication skills with family and society.

5. Meal Planning

(i) Concept of balanced diet.

Definition of a balanced diet, basic five food groups and their nutritional contribution in the diet.

(ii) Meal planning for the family.

Planning of balanced meals keeping in mind the factors and food groups.

(iii) Hygienic handling and storage of food - household methods of preservation of food.

Food hygiene at different stages – during purchasing, storage, preparation and serving. Storage of food - perishables, semi-perishables and non-perishables; Household methods of preservation of food – sun drying, freezing, use of salt, sugar, spices, oil and chemical preservatives.

6. Care of Textiles and Clothing

(i) Laundering of clothes.

Steps involved in household methods of laundering of cotton, silk, wool and synthetics.

(ii) Laundry material.

Use of detergents and soaps, starch, blue and optical brighteners.

7. Consumer Education

(i) Meaning and need for consumer education

Role of consumer education in preparing children to be well informed consumers.

(ii) Wise buying methods for aware consumers.

Basic understanding of what, where, when, how and how much to buy.

(iii) Consumer Rights and responsibilities

Awareness of consumer rights as mentioned in Consumer Protection Act 1986; Making them aware that rights and responsibilities will go hand in hand.

(iv) Food adulteration

Definition and health hazards of common food adulterants - metanil yellow, argemone seeds, kesari dal (lathyrus satyvus).

PART II: INTERNAL ASSESSMENT

To be assessed internally by the school - 100 Marks.

Practical Work

Candidates will be required to practice one or more aspects of household work or cookery or care of clothing. They may also undertake practical work on any of the topics suggested below. The teacher is free to assess the practical work either on the basis of continuous assessment or on the basis of periodical tests.

The minimum number of assignments for each academic year:

Class IX - Five practical oriented assignments as prescribed by the teacher.

Class X - Five practical oriented assignments as prescribed by the teacher.

Suggested Assignments

- Preparation of nutritious snacks and various kinds of sandwiches.
- Removal of common stains from clothes/ fabrics – oil/curry/turmeric, blood, dye, ink and grass.
- Demonstration of various cuts of vegetables and fruits like slice, chop, dice, mince, juliennes to make easy salads.
- Finding out from parents about planning of household budget and saving methods.
Plan a system for recycling of waste produced by the school/home.

- Preparation of compost pits.
- Gardening – potted plants, planting of herbs and medicinal plants and their care.
- Layout of the plan of the Home Science lab with complete detailing of work centres, storage areas and placement of heavy and light equipment.
- Cookery: Preparation of food using simple cooking techniques such as boiling, frying, steaming, grilling, baking, stewing.
- Care of clothing: Laundering of cotton and silk.
- Simple first aid in the home. First aid box and its contents - band aids, burnol, disinfectant, simple home remedy medicines, e.g. pain killer and pain balm and paracetamol.
- Safety considerations in the home – the study of safety features in the home, e.g. floors and floorings, staircase, lighting (natural and artificial) installation and maintenance of electrical points, fittings and gadgets. Suggestions for changes in safety considerations for elderly people and children.
- Collect labels from packages of food, clothing and consumer durables; study and analyse the information given in these labels.
- Cleaning of glass panes, grills, sink (steel and ceramic), counter tops (marble, granite and sand stones) and wooden shelves and electrical appliances like refrigerator, oven and cooking stove.
- Tips for personal grooming – pedicure and manicure, care of acne and pimples with homemade remedies.
- List foods you have eaten on any one day and classify them into food groups, and analyse on the basis of nutrient content and appearance.
- Collect samples of fabrics and compare them on the basis of cost, durability, appearance and suitability. Testing of fibres – burning test.
- Food preservation – making of chutneys, pickles, and jam.
- Various innovative table layouts, napkin folding and creative decorations.
- Collect ten play materials and evaluate them in terms of their merits and demerits.

- Participate in eco-clubs and activities like debates, quizzes, exhibitions, essay competitions on the themes related to environmental concerns and problems. Synthesize information gathered from books, journals, magazines and the internet.
- Visit a water treatment plant, sewage treatment plant or garbage dumping or vermi composting site in the locality and study their working.
- Collect information about global environmental issues and problems and communicate your findings through appropriate modes of communication such as posters, charts, collages, cartoons, handouts, letters, street plays, etc. to all concerned.
- Identify economically and environmentally friendly alternatives in order to deal with the scarcity of resources such as fuels in the locality.

**Final Test**

In addition to the course work the candidate will be tested in one or more aspects of household work or cookery or care of clothing by the External Examiner.

**EVALUATION**

The assignments/project works are to be evaluated by the subject teacher and by an External Examiner. The External Examiner may be a teacher nominated by the Head of the school, who could be from the faculty, **but not teaching the subject in the section/class**. For example, a teacher of Home Science of Class XI may be deputed to be an External Examiner for Class X, Home Science projects.

The Internal Examiner and the External Examiner will assess the assignments independently.

**Award of marks**

Subject Teacher (Internal Examiner): 50 marks
External Examiner: 50 marks

The total marks obtained out of 100 are to be sent to the Council by the Head of the school.

The Head of the school will be responsible for the entry of marks on the mark sheets provided by the Council.
## INTERNAL ASSESSMENT IN HOME SCIENCE - GUIDELINES FOR MARKING WITH GRADES

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Planning Efficiency</th>
<th>Working to time plan</th>
<th>Manipulation</th>
<th>Quality produced</th>
<th>Appearance/Arrangement</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade I</td>
<td>Follows the question set and systematically organises the work process.</td>
<td>Is successful in handling parts of the question set and fits them within required time.</td>
<td>Excellent display of manipulative skills - can deal with a laboratory situation efficiently.</td>
<td>With a special insight into the question, the quality developed is of a high standard.</td>
<td>A fine aesthetic sense and artistic ability conveyed in the complete arrangement.</td>
<td>4 marks for each criterion</td>
</tr>
<tr>
<td>Grade II</td>
<td>Follows the question set except that the step by step work shows slow operational skill.</td>
<td>Is successful in handling parts of the question, but the smooth work appears to slow down.</td>
<td>Good control of manipulative skills. Has been able to deal with each situation with ease.</td>
<td>The insight into the requirements of the question has been achieved and the quality is good.</td>
<td>The display of colour and equipment used gives an impression of sound organisation.</td>
<td>3 marks for each criterion</td>
</tr>
<tr>
<td>Grade III</td>
<td>Follows the question. Order of work process shows lack of co-ordination.</td>
<td>Is successful in handling the question, however the time link seems to break in some area.</td>
<td>Has been successful with the manipulative skills in parts, then gradually slows down.</td>
<td>The quality has been produced in part but the overall lacks some achievement.</td>
<td>The arrangement appears complete but some special details missing.</td>
<td>2 marks for each criterion</td>
</tr>
<tr>
<td>Grade IV</td>
<td>Follows a part of the question, work sequence appears disorganised.</td>
<td>Is able to work only a part of the question within the time stated and then seems confused.</td>
<td>Begins with a control of the skills and is unable to sustain the effort.</td>
<td>Only few areas of quality are visible, which affect the total result produced.</td>
<td>Part of the arrangement is represented but the total appearance lacks finish and composition.</td>
<td>1 mark for each criterion</td>
</tr>
<tr>
<td>Grade V</td>
<td>Has not been able to interpret the question into proper laboratory organisation.</td>
<td>Time and work sequence is most disorganised.</td>
<td>Is unable to control and manipulate the required skills.</td>
<td>No standard of quality has been achieved due to poor understanding.</td>
<td>There has been no achievement in either the appearance or arrangement.</td>
<td>0 marks for each criterion</td>
</tr>
</tbody>
</table>
SECOND LANGUAGE

Aims:
1. To appreciate the language as an effective means of communication.
2. To acquire knowledge of the elements of the language.
3. To develop an interest in the language.
4. To understand the language when spoken at normal conversational speed.
5. To understand the basic structural patterns of the language, vocabulary and constructions.

INDIAN LANGUAGES

CLASSES IX AND X

Papers will be set in the following languages:

Ao-Naga, Assamese, Bengali, Dzongkha, Garo, Gujarati, Hindi, Kannada, Khasi, Kokborok, Lepcha, Malayalam, Manipuri, Marathi, Mizo, Nepali, Odia, Punjabi, Sanskrit, Tamil, Tangkhul, Telugu, Urdu or any other language of an Indian community approved by the Council.

There will be one paper of three hours duration carrying 80 marks and Internal Assessment of 20 marks.

The paper will be divided into two sections, Section A and Section B.

Section A: Language 40 marks
Section B: Prescribed Texts 40 marks

Candidates will be required to attempt all questions from Section A. They must attempt four questions from Section B from ONLY two of the prescribed textbooks.

SECTION A: LANGUAGE - 40 Marks

This section will consist of four questions, all of which will be compulsory.

1. Composition: Candidates will be required to write one composition, in the language, which may include short explanations, directions, descriptions or narratives. There will be a choice of subjects, which will be varied and may be suggested by language or other stimuli such as pictures and objects. ..... 15 Marks

2. Letter: Candidates will be required to write a letter from a choice of two subjects. Suggestions may be given. The layout of the letter with address, introduction, conclusion, etc., will form part of the assessment. ..... 7 Marks

3. Comprehension: An unseen passage of about 250 words will be given in the language. Questions on the passage will be set for answers in the language, designed to test the candidates' understanding of the content of the passage. ..... 10 Marks

4. Grammar: This will consist of tests in the use of language vocabulary, syntax and idioms, synthesis in sentence construction, formation of sentences in the language correctly embodying given words or forms. The question will not require any knowledge of grammatical terms. ..... 8 Marks

SECTION B: PRESCRIBED TEXTS - 40 Marks

The question paper will consist of structured and short answer questions. Candidates will be required to answer four questions from ONLY two of the prescribed text books. All questions will be set in the language and candidates will be required to answer in the language. The questions set will be designed to test the candidates’ understanding of the subject matter of the prescribed books.

Note: For list of Prescribed Textbooks, see Appendix - I.

The Class X – ICSE examination paper will be set on the entire syllabus prescribed for the subject. The Class IX internal examination is to be conducted on the portion of this syllabus that is covered during the academic year. The Council has not prescribed bifurcation of the syllabus prescribed for this subject.
INTERNAL ASSESSMENT

Language and Literature:
Class IX: Two or three assignments of reasonable length/duration of which two should be written assignments – one from the language and one from the literature component of the syllabus.

Class X: Two or three assignments of reasonable length/duration of which two should be written assignments – one from the language and one from the literature component of the syllabus.

SUGGESTED ASSIGNMENTS

Language:
Class IX: Creative Writing: Students are to write short compositions (approximately 300 to 400 words each), the stimuli being: i) a piece of recorded music; ii) a recorded series of sound; iii) a picture/photograph; iv) an opening sentence or phrase; v) a newspaper/magazine clipping or report; one piece of factual writing which should be informative or argumentative; one piece of expressive writing which is descriptive and imaginative; preparation of film/book review.

Aural: Listening to a conversation/talk/reading of a short passage and then writing down the relevant or main points in the specified number of words and answering the given questions.

Class X: Oral: Prepared speech/declamation; impromptu speech/debate/discussion; report/interview; elocution; role-play / general conversation on selected topics.

Creative Writing: Students are to write short compositions (approximately 300 to 400 words each), the stimuli being: i) a piece of recorded music; ii) a recorded series of sound; iii) a picture/photograph; iv) an opening sentence or phrase; v) a newspaper/magazine clipping or report; one piece of factual writing which should be informative or argumentative; one piece of expressive writing which is descriptive and imaginative; preparation of film/book review.

Literature (Prescribed Texts):
Classes IX and X
Assignments should be based on the prescribed textbooks on the following lines:
(i) Character/thematic analysis.
(ii) Socio-economic, cultural, historical relevance / background.
(iii) Summary / paraphrase.

EVALUATION

The assignments/project work are to be evaluated by the subject teacher and by an External Examiner. (The External Examiner may be a teacher nominated by the Head of the school, who could be from the faculty, but not teaching the subject in the section/class. For example, a teacher of the language of Class VIII may be deputed to be an External Examiner for Class X projects in the language.)

The Internal Examiner and the External Examiner will assess the assignments independently.

Award of marks (20 Marks)
Subject Teacher (Internal Examiner) 10 marks
External Examiner 10 marks

The total marks obtained out of 20 are to be sent to the Council by the Head of the school.

The Head of the school will be responsible for the entry of marks on the mark sheets provided by the Council.
<table>
<thead>
<tr>
<th>Grade</th>
<th>Content/Analysis of Idea, Thought/ Feeling.</th>
<th>Expression/ Effective Expression of Idea</th>
<th>Structure/ Organisation of Material</th>
<th>Vocabulary/ Use of Words, Phrases</th>
<th>Originality/ Imaginative/ Innovative</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>The candidate analyses the ideas, feelings and experiences effectively. Reasoning is logical and effective.</td>
<td>The candidate expresses the ideas, thoughts and feelings effectively.</td>
<td>The work is very well structured with a sense of introduction, body, middle and conclusion, paragraphing and appropriate sentence construction.</td>
<td>The use of vocabulary exhibits a high level of competence in handling language.</td>
<td>The work is imaginative, interesting and engrossing.</td>
<td>4</td>
</tr>
<tr>
<td>II</td>
<td>The candidate analyses the ideas, feelings and experiences with well-defined explanations, reasoning is logical and persuasive.</td>
<td>The candidate expresses the ideas, thoughts and feelings well and with clarity.</td>
<td>The work is very well structured with some sense of conclusion and of paragraph lengths.</td>
<td>The vocabulary exhibits competence of word usage; correctness of grammar and spelling.</td>
<td>The candidate's work is quite interesting and engrossing.</td>
<td>3</td>
</tr>
<tr>
<td>III</td>
<td>The candidate analyses the ideas, feelings and experiences with a fair degree of detail and explanation. Reasoning is fairly logical and persuasive.</td>
<td>The candidate expresses the ideas, thoughts and feelings fairly well and with a fair degree of clarity.</td>
<td>The work is fairly well structured; candidate follows simple paragraphing.</td>
<td>The candidate uses straightforward vocabulary and fairly good pattern of spellings.</td>
<td>The candidate demonstrates the ability to sustain the interest of the reader.</td>
<td>2</td>
</tr>
<tr>
<td>IV</td>
<td>The candidate attempts to analyze ideas, feelings and experiences with simple explanation and detail. Reasoning and arguments are not very convincing.</td>
<td>The candidate expresses the ideas, thoughts and feelings intelligibly and in simple language.</td>
<td>The work shows some understanding of paragraphing and structure.</td>
<td>The candidate's vocabulary is limited and the spelling, punctuation and grammar is sometimes poor.</td>
<td>The candidate is, to some extent, able to sustain the interest of the reader.</td>
<td>1</td>
</tr>
<tr>
<td>V</td>
<td>The candidate attempts a basic analysis of ideas, feelings and experiences with few simple explanations and few details. Is unable to present proper arguments.</td>
<td>The candidate is unable to express the ideas, thoughts and feelings, uses simple language and the work is not very intelligible.</td>
<td>The candidate does not display an understanding of structure and paragraphing.</td>
<td>There is consistent weakness in spelling, punctuation and grammar.</td>
<td>The candidate is unable to sustain the interest of the reader.</td>
<td>0</td>
</tr>
</tbody>
</table>
### INTERNAL ASSESSMENT IN INDIAN LANGUAGES - GUIDELINES FOR MARKING WITH GRADES

#### AURAL ASSIGNMENT (CLASS IX)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Understanding/Comprehension Main Idea, Central Theme</th>
<th>Recall</th>
<th>Vocabulary</th>
<th>Context/Correlation to Other Areas</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>The candidate accurately understands the central idea of the passage as well as the relevant points in the selected passage/talk.</td>
<td>The candidate recalls all the important points made (written/verbal).</td>
<td>The candidate uses appropriate and correct vocabulary while recalling the points made.</td>
<td>The candidate clearly understands the context and can widely correlate the passage to the other areas.</td>
<td>3</td>
</tr>
<tr>
<td>II</td>
<td>The candidate gives ideas fairly close to the central/main idea of the passage as well as understand some of the relevant points heard in the selected passage/talk.</td>
<td>The candidate recalls some of the important points made (written/verbal).</td>
<td>The candidate uses correct but simple vocabulary while recalling the points made.</td>
<td>The candidate can moderately understand the context of the passage and can moderately correlate the passage to the other areas.</td>
<td>2</td>
</tr>
<tr>
<td>III</td>
<td>The candidate cannot fully comprehend the passage and gives only a few ideas related to the central theme of the passage.</td>
<td>The candidate recalls very few of the important points made (written/verbal).</td>
<td>The candidate makes various errors in vocabulary while recalling the points made.</td>
<td>The candidate can only faintly understand the context of the passage and relate it to the other areas.</td>
<td>1</td>
</tr>
<tr>
<td>IV</td>
<td>The candidate is neither able to understand the central/main idea of the passage; nor able to understand relevant points heard in the passage/talk.</td>
<td>The candidate is unable to recall the important points made (written/verbal).</td>
<td>The candidate uses incorrect vocabulary while recalling the points made.</td>
<td>The candidate is unable to understand the context of the passage and is unable to correlate the passage to the other areas.</td>
<td>0</td>
</tr>
</tbody>
</table>
### INTERNAL ASSESSMENT IN INDIAN LANGUAGES - GUIDELINES FOR MARKING WITH GRADES
**ORAL ASSIGNMENT (CLASS X)**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Fluency of Language</th>
<th>Subject Matter</th>
<th>Organization</th>
<th>Vocabulary/Delivery</th>
<th>Understanding</th>
<th>Gesture</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Speaks with fluency and has full operational command over the language.</td>
<td>Matter is relevant, rich in content and original.</td>
<td>Content is well sequenced and well organized.</td>
<td>Uses appropriate vocabulary and pronounces words correctly.</td>
<td>While speaking, the candidate emphasizes the important points.</td>
<td>Uses natural and spontaneous gestures that are not out of place.</td>
<td>3</td>
</tr>
<tr>
<td>II</td>
<td>The candidate speaks with fairly good fluency and has reasonable operational command of the language.</td>
<td>The subject matter is mostly relevant, consisting of a few original ideas.</td>
<td>The content is satisfactorily sequenced and well organized.</td>
<td>The candidate pronounces most words correctly and uses simple vocabulary.</td>
<td>While speaking the candidate emphasizes most important points.</td>
<td>Uses some natural gestures.</td>
<td>2</td>
</tr>
<tr>
<td>III</td>
<td>The candidate speaks with poor fluency and does not communicate except for the most basic information.</td>
<td>The subject matter is irrelevant and lacks originality.</td>
<td>The subject content is very poor and lacks organisational structure.</td>
<td>The candidate pronounces many words incorrectly and uses inappropriate vocabulary.</td>
<td>While speaking, the candidate emphasizes some important points.</td>
<td>Uses very few natural gestures.</td>
<td>1</td>
</tr>
<tr>
<td>IV</td>
<td>The candidate cannot communicate even the most basic information.</td>
<td>The subject matter is negligible.</td>
<td>The subject content comprises of mere words with no structured sentences.</td>
<td>The candidate is unable to correctly pronounce most words and has a limited vocabulary.</td>
<td>While speaking, the candidate is unable to emphasize important points.</td>
<td>Uses no natural gestures.</td>
<td>0</td>
</tr>
</tbody>
</table>
## INTERNAL ASSESSMENT IN INDIAN LANGUAGES (LITERATURE - PRESCRIBED TEXTS) - GUIDELINES FOR MARKING WITH GRADES (CLASSES IX & X)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Understanding of Text (Narrative)</th>
<th>Examples from Text</th>
<th>Understanding of text- Interpretation and Evaluation</th>
<th>Appreciation of Language, Characterization</th>
<th>Critical Appreciation -Personal Response</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>The candidate demonstrates expertise in giving an appropriate account of the text, with well-chosen reference to narrative and situation.</td>
<td>The account is suitably supported by relevant examples from the text.</td>
<td>The candidate understands the text with due emphasis on interpretation and evaluation.</td>
<td>The candidate appreciates and evaluates significant ways (structure, character, imagery) in which writers have achieved their effects.</td>
<td>The candidate is able to effectively reflect personal response (critical appreciation) to the text.</td>
<td>4</td>
</tr>
<tr>
<td>II</td>
<td>The candidate demonstrates a high level of competence in giving an account of the text, with appropriate references to the narrative and situation.</td>
<td>The account is supported by examples from the text.</td>
<td>The candidate understands the text with some emphasis on interpretation and evaluation.</td>
<td>The candidate appreciates and evaluates significant ways in which writers have achieved their effects.</td>
<td>The candidate is able to reflect a personal response to the text.</td>
<td>3</td>
</tr>
<tr>
<td>III</td>
<td>The candidate demonstrates competence in giving an account of the text with some reference to the narrative and situation.</td>
<td>The candidate understands the text and shows a basic recognition of the theme and can support it by a very few examples.</td>
<td>The candidate recognizes some aspects of the text used by authors to present ideas.</td>
<td>The candidate recognizes some of the significant ways in which the writers have used the language.</td>
<td>The candidate is able to communicate a personal response which shows appreciation.</td>
<td>2</td>
</tr>
<tr>
<td>IV</td>
<td>The candidate gives broad account of the text with reference to the narrative and situation.</td>
<td>The candidate understands the basic meaning of the text.</td>
<td>The candidate relates the text to other texts studied.</td>
<td>The candidate recognizes differences in the way authors write.</td>
<td>The candidate communicates straightforward personal response to the text.</td>
<td>1</td>
</tr>
<tr>
<td>V</td>
<td>The candidate is unable to demonstrate an understanding of the basic events in the text.</td>
<td>The candidate is unable to understand the text or support it with any examples.</td>
<td>The candidate is unable to relate to the other text studied.</td>
<td>The candidate is unable to recognize the differences in the way authors write.</td>
<td>The candidate is unable to give a personal view of the text studied.</td>
<td>0</td>
</tr>
</tbody>
</table>
MATHEMATICS (51)

Aims:
1. To acquire knowledge and understanding of the terms, symbols, concepts, principles, processes, proofs, etc. of mathematics.
2. To develop an understanding of mathematical concepts and their application to further studies in mathematics and science.
3. To develop skills to apply mathematical knowledge to solve real life problems.
4. To develop the necessary skills to work with modern technological devices such as calculators and computers in real life situations.
5. To develop drawing skills, skills of reading tables, charts and graphs.
6. To develop an interest in mathematics.

CLASS IX

There will be one paper of two and a half hours duration carrying 80 marks and Internal Assessment of 20 marks.

The paper will be divided into two sections, Section I (40 marks), Section II (40 marks).

Section I: will consist of compulsory short answer questions.

Section II: Candidates will be required to answer four out of seven questions.

The solution of a question may require the knowledge of more than one branch of the syllabus.

1. Pure Arithmetic
   Rational and Irrational Numbers
   Rational, irrational numbers as real numbers, their place in the number system. Surds and rationalization of surds. Simplifying an expression by rationalizing the denominator.

2. Commercial Mathematics
   Compound Interest
   (a) Compound interest as a repeated Simple Interest computation with a growing Principal. Use of this in computing Amount over a period of 2 or 3 years.
   (b) Use of formula \( A = P\left(1 + \frac{r}{100}\right)^n \). Finding CI from the relation \( CI = A - P \).

   - Interest compounded half-yearly included.
   - Using the formula to find one quantity given different combinations of \( A, \ P, \ r, \ n, \ CI \) and \( SI \); difference between \( CI \) and \( SI \) type included.

3. Algebra
   (i) Expansions
      Recall of concepts learned in earlier classes.
      \( (a \pm b)^2 \)
      \( (a \pm b)^3 \)
      \( (x \pm a)(x \pm b) \)
      \( (a \pm b \pm c)^2 \)

   (ii) Factorisation
      \( a^2 - b^2 \)
      \( a^3 \pm b^3 \)
      \( ax^2 + bx + c \), by splitting the middle term.

   (iii) Simultaneous Linear Equations in two variables. (With numerical coefficients only)
      - Solving algebraically by:
        - Elimination
        - Substitution and
        - Cross Multiplication method
      - Solving simple problems by framing appropriate equations.

   (iv) Indices/ Exponents
      Handling positive, fractional, negative and “zero” indices.
      Simplification of expressions involving various exponents
etc. Use of laws of exponents.

(v) Logarithms
(a) Logarithmic form vis-à-vis exponential form: interchanging.
(b) Laws of Logarithms and their uses.
Expansion of expression with the help of laws of logarithms
eg. \[ y = \frac{a^4 \times b^2}{c^3} \]
log \( y = 4 \log a + 2 \log b - 3 \log c \) etc.

4. Geometry
(i) Triangles
(a) Congruency: four cases: SSS, SAS, AAS, and RHS. Illustration through cutouts. Simple applications.
(b) Problems based on:
- Angles opposite equal sides are equal and converse.
- If two sides of a triangle are unequal, then the greater angle is opposite the greater side and converse.
- Sum of any two sides of a triangle is greater than the third side.
- Of all straight lines that can be drawn to a given line from a point outside it, the perpendicular is the shortest.

Proofs not required.
(c) Mid-Point Theorem and its converse, equal intercept theorem
(i) Proof and simple applications of mid-point theorem and its converse.
(ii) Equal intercept theorem: proof and simple application.
(d) Pythagoras Theorem
Area based proof and simple applications of Pythagoras Theorem and its converse.

(ii) Rectilinear Figures
(a) Proof and use of theorems on parallelogram.
- Both pairs of opposite sides equal (without proof).
- Both pairs of opposite angles equal.
- One pair of opposite sides equal and parallel (without proof).
- Diagonals bisect each other and bisect the parallelogram.
- Rhombus as a special parallelogram whose diagonals meet at right angles.
- In a rectangle, diagonals are equal, in a square they are equal and meet at right angles.

(b) Constructions of Polygons
Construction of quadrilaterals (including parallelograms and rhombus) and regular hexagon using ruler and compasses only.

(c) Proof and use of Area theorems on parallelograms:
- Parallelograms on the same base and between the same parallels are equal in area.
- The area of a triangle is half that of a parallelogram on the same base and between the same parallels.
- Triangles between the same base and between the same parallels are equal in area (without proof).
- Triangles with equal areas on the same bases have equal corresponding altitudes.

(iii) Circle:
(a) Chord properties
- A straight line drawn from the center of a circle to bisect a chord which is not a diameter is at right angles to the chord.
- The perpendicular to a chord from the center bisects the chord (without proof).
Equal chords are equidistant from the center.
Chords equidistant from the center are equal (without proof).
There is one and only one circle that passes through three given points not in a straight line.

(b) Arc and chord properties:
- If two arcs subtend equal angles at the center, they are equal, and its converse.
- If two chords are equal, they cut off equal arcs, and its converse (without proof).

Note: Proofs of the theorems given above are to be taught unless specified otherwise.

5. Statistics
Introduction, collection of data, presentation of data, Graphical representation of data, Mean, Median of ungrouped data.
(i) Understanding and recognition of raw, arrayed and grouped data.
(ii) Tabulation of raw data using tally-marks.
(iii) Understanding and recognition of discrete and continuous variables.
(iv) Mean, median of ungrouped data
(v) Class intervals, class boundaries and limits, frequency, frequency table, class size for grouped data.
(vi) Grouped frequency distributions: the need to and how to convert discontinuous intervals to continuous intervals.
(vii) Drawing a frequency polygon.

6. Mensuration
Area and perimeter of a triangle and a quadrilateral. Area and circumference of circle. Surface area and volume of Cube and Cuboids.
(a) Area and perimeter of triangle (including Heron’s formula), rhombus, parallelogram and trapezium.
(b) Circle: Area and Circumference. Direct application problems including Inner and Outer area.
Areas of sectors of circles other than quarter-circle and semicircle are not included.
(c) Surface area and volume of 3-D solids: cube and cuboid including problems of type involving:
- Different internal and external dimensions of the solid.
- Cost.
- Concept of volume being equal to area of cross-section x height.
- Open/closed cubes/cuboids.

7. Trigonometry
(a) Trigonometric Ratios: sine, cosine, tangent of an angle and their reciprocals.
(b) Trigonometric ratios of standard angles- 0, 30, 45, 60, 90 degrees. Evaluation of an expression involving these ratios.
(c) Simple 2-D problems involving one right-angled triangle.
(d) Concept of trigonometric ratios of complementary angles and their direct application:
\[ \sin A = \cos(90 - A), \cos A = \sin(90 - A) \]
\[ \tan A = \cot (90 - A), \cot A = \tan (90 - A) \]
\[ \sec A = \cosec (90 - A), \cosec A = \sec(90 - A) \]

8. Co-ordinate Geometry
Cartesian System, Plotting of points in the plane for given coordinates, solving simultaneous linear equations in 2 variables graphically and finding the distance between two points using distance formula.
(a) Dependent and independent variables.
(b) Ordered pairs, co-ordinates of points and plotting them in the Cartesian plane.
(c) Solution of Simultaneous Linear Equations graphically.
(d) Distance formula.
INTERNAL ASSESSMENT

A minimum of two assignments are to be done during the year as prescribed by the teacher.

Suggested Assignments

- Conduct a survey of a group of students and represent it graphically - height, weight, number of family members, pocket money, etc.
- Planning delivery routes for a postman/milkman.
- Running a tuck shop/canteen.
- Study ways of raising a loan to buy a car or house, e.g. bank loan or purchase a refrigerator or a television set through hire purchase.

- Cutting a circle into equal sections of a small central angle to find the area of a circle by using the formula  \( A = \pi r^2 \).
- To use flat cutouts to form cube, cuboids and pyramids to obtain formulae for volume and total surface area.
- Draw a circle of radius \( r \) on a \( \frac{1}{2} \) cm graph paper, and then on a 2 mm graph paper. Estimate the area enclosed in each case by actually counting the squares. Now try out with circles of different radii. Establish the pattern, if any, between the two observed values and the theoretical value (area = \( \pi r^2 \)). Any modifications?
There will be one paper of two and a half hours duration carrying 80 marks and Internal Assessment of 20 marks.

The paper will be divided into two sections, Section I (40 marks), Section II (40 marks).

Section I: Will consist of compulsory short answer questions.

Section II: Candidates will be required to answer four out of seven questions.

1. Commercial Mathematics
   (i) Value Added Tax
   Computation of tax including problems involving discounts, list-price, profit, loss, basic/cost price including inverse cases.
   (ii) Banking
   Recurring Deposit Accounts: computation of interest and maturity value using the formula:
   \[
   I = P\frac{n(n+1)}{2} \times \frac{r}{100}
   \]
   \[
   MV = P \times n + I
   \]
   (iii) Shares and Dividends
   (a) Face/Nominal Value, Market Value, Dividend, Rate of Dividend, Premium.
   (b) Formulae
   - Income = number of shares \times rate of dividend \times FV.
   - Return = (Income / Investment) \times 100. Note: Brokerage and fractional shares not included

2. Algebra
   (i) Linear Inequations
   Linear Inequations in one unknown for \(x \in N, W, Z, R\). Solving
   - Algebraically and writing the solution in set notation form.
   - Representation of solution on the number line.
   (ii) Quadratic Equations in one variable
   (a) Nature of roots
   - Two distinct real roots if \(b^2 - 4ac > 0\)
   - Two equal real roots if \(b^2 - 4ac = 0\)
   - No real roots if \(b^2 - 4ac < 0\)
   (b) Solving Quadratic equations by:
   - Factorisation
   - Using Formula.
   (c) Solving simple quadratic equation problems.
   (iii) Ratio and Proportion
   (a) Proportion, Continued proportion, mean proportion
   (b) Componendo, dividendo, alternendo, invertendo properties and their combinations.
   (c) Direct simple applications on proportions only.
   (iv) Factorisation of polynomials:
   (a) Factor Theorem.
   (b) Remainder Theorem.
   (c) Factorising a polynomial completely after obtaining one factor by factor theorem.
   Note: \(f(x)\) not to exceed degree 3.
   (v) Matrices
   (a) Order of a matrix. Row and column matrices.
   (b) Compatibility for addition and multiplication.
   (c) Null and Identity matrices.
   (d) Addition and subtraction of 2\(\times\)2 matrices.
   (e) Multiplication of a 2\(\times\)2 matrix by
   - a non-zero rational number
   - a matrix.
(vi) Arithmetic and Geometric Progression

- Finding their General term.
- Finding Sum of their first ‘n’ terms.
- Simple Applications.

(vii) Co-ordinate Geometry

(a) Reflection

(i) Reflection of a point in a line: $x=0, y =0, x= a, y=a$, the origin.

(ii) Reflection of a point in the origin.

(iii) Invariant points.

(b) Co-ordinates expressed as $(x,y)$, Section formula, Midpoint formula, Concept of slope, equation of a line, Various forms of straight lines.

(i) Section and Mid-point formula

(Internal section only, co-ordinates of the centroid of a triangle included).

(ii) Equation of a line:
- Slope–intercept form $y = mx + c$
- Two- point form $(y-y_1) = m(x-x_1)$

Geometric understanding of ‘$m$’ as slope/ gradient/ $\tan \theta$ where $\theta$ is the angle the line makes with the positive direction of the $x$ axis.

Geometric understanding of ‘$c$’ as the $y$-intercept/the ordinate of the point where the line intercepts the $y$ axis/ the point on the line where $x=0$.

- Conditions for two lines to be parallel or perpendicular.

Simple applications of all the above.

3. Geometry

(a) Similarity

Similarity, conditions of similar triangles.

(i) As a size transformation.

(ii) Comparison with congruency, keyword being proportionality.

(iii) Three conditions: SSS, SAS, AA. Simple applications (proof not included).

(iv) Applications of Basic Proportionality Theorem.

(v) Areas of similar triangles are proportional to the squares of corresponding sides.

(vi) Direct applications based on the above including applications to maps and models.

(b) Loci

Loci: Definition, meaning, Theorems and constructions based on Loci.

(i) The locus of a point at a fixed distance from a fixed point is a circle with the fixed point as centre and fixed distance as radius.

(ii) The locus of a point equidistant from two intersecting lines is the bisector of the angles between the lines.

(iii) The locus of a point equidistant from two given points is the perpendicular bisector of the line joining the points.

Proofs not required

(c) Circles

(i) Angle Properties

- The angle that an arc of a circle subtends at the center is double that which it subtends at any point on the remaining part of the circle.

- Angles in the same segment of a circle are equal (without proof).

- Angle in a semi-circle is a right angle.

(ii) Cyclic Properties:

- Opposite angles of a cyclic quadrilateral are supplementary.

- The exterior angle of a cyclic quadrilateral is equal to the opposite interior angle (without proof).

(iii) Tangent and Secant Properties:

- The tangent at any point of a circle and the radius through the point are perpendicular to each other.
- If two circles touch, the point of contact lies on the straight line joining their centers.
- From any point outside a circle two tangents can be drawn and they are equal in length.
- If two chords intersect internally or externally then the product of the lengths of the segments are equal.
- If a chord and a tangent intersect externally, then the product of the lengths of segments of the chord is equal to the square of the length of the tangent from the point of contact to the point of intersection.
- If a line touches a circle and from the point of contact, a chord is drawn, the angles between the tangent and the chord are respectively equal to the angles in the corresponding alternate segments.

Note: Proofs of the theorems given above are to be taught unless specified otherwise.

(iv) Constructions
(a) Construction of tangents to a circle from an external point.
(b) Circumscribing and inscribing a circle on a triangle and a regular hexagon.

4. Mensuration
Area and volume of solids – Cylinder, Cone and Sphere.
Three-dimensional solids - right circular cylinder, right circular cone and sphere: Area (total surface and curved surface) and Volume. Direct application problems including cost, Inner and Outer volume and melting and recasting method to find the volume or surface area of a new solid. Combination of solids included.

Note: Problems on Frustum are not included.

5. Trigonometry
(a) Using Identities to solve/prove simple algebraic trigonometric expressions
\[
\sin^2 A + \cos^2 A = 1 \\
1 + \tan^2 A = \sec^2 A \\
1 + \cot^2 A = \cosec^2 A; \quad 0 \leq A \leq 90^\circ
\]
(b) Heights and distances: Solving 2-D problems involving angles of elevation and depression using trigonometric tables.

Note: Cases involving more than two right angled triangles excluded.

6. Statistics
Statistics – basic concepts, Mean, Median, Mode. Histograms and Ogive.
(a) Computation of:
- Measures of Central Tendency: Mean, median, mode for raw and arrayed data. Mean*, median class and modal class for grouped data. (both continuous and discontinuous).
- * Mean by all 3 methods included:
- Direct : \(\frac{\sum fx}{\sum f}\)
- Short-cut : \(A + \frac{\sum fd}{\sum f}\) where \(d = x - A\)
- Step-deviation: \(A + \frac{\sum ft}{\sum f} \times i\) where \(t = \frac{x - A}{i}\)

(b) Graphical Representation. Histograms and Less than Ogive.
- Finding the mode from the histogram, the upper quartile, lower Quartile and median etc. from the ogive.
- Calculation of inter Quartile range.

7. Probability
- Random experiments
- Sample space
- Events
- Definition of probability
- Simple problems on single events
Note: SI units, signs, symbols and abbreviations

(1) Agreed conventions

(a) Units may be written in full or using the agreed symbols, but no other abbreviation may be used.

(b) The letter’s’ is never added to symbols to indicate the plural form.

(c) A full stop is not written after symbols for units unless it occurs at the end of a sentence.

(d) When unit symbols are combined as a quotient, e.g. metre per second, it is recommended that they be written as m/s, or as m s\(^{-1}\).

(e) Three decimal signs are in common international use: the full point, the mid-point and the comma. Since the full point is sometimes used for multiplication and the comma for spacing digits in large numbers, it is recommended that the mid-point be used for decimals.

(2) Names and symbols

<table>
<thead>
<tr>
<th>In general</th>
<th>Implies that ( \Rightarrow )</th>
<th>is logically equivalent to ( \equiv )</th>
<th>is approximately equal to ( \approx )</th>
</tr>
</thead>
<tbody>
<tr>
<td>In set language</td>
<td>Belongs to ( \in )</td>
<td>does not belong to ( \not\in )</td>
<td>is equivalent to ( \leftrightarrow )</td>
</tr>
<tr>
<td>In measures</td>
<td>Kilometre ( \text{km} )</td>
<td>Metre ( \text{m} )</td>
<td>Centimetre ( \text{cm} )</td>
</tr>
</tbody>
</table>

INTERNAL ASSESSMENT

The minimum number of assignments: Two assignments as prescribed by the teacher.

Suggested Assignments

- Comparative newspaper coverage of different items.
- Survey of various types of Bank accounts, rates of interest offered.
- Planning a home budget.
- Conduct a survey in your locality to study the mode of conveyance / Price of various essential commodities / favourite sports. Represent the data using a bar graph / histogram and estimate the mode.
- To use a newspaper to study and report on shares and dividends.
- Set up a dropper with ink in it vertical at a height say 20 cm above a horizontally placed sheet of plain paper. Release one ink drop; observe the pattern, if any, on the paper. Vary the vertical distance and repeat. Discover any pattern of relationship between the vertical height and the ink drop observed.
- You are provided (or you construct a model as shown) - three vertical sticks (size of a pencil) stuck to a horizontal board. You should also have discs of varying sizes with holes (like a doughnut). Start with one disc; place it on (in) stick A. Transfer it to another stick (B or C); this is one move (m). Now try with two discs placed in A such that the large disc is below and the smaller disc is above (number of discs = n=2 now). Now transfer them one at a time in B or C to obtain similar situation (larger disc below). How many moves? Try with more discs (n = 1, 2, 3, etc.) and generalise.
- The board has some holes to hold marbles, red on one side and blue on the other. Start with one pair. Interchange the positions by making one move at a time. A marble can jump over another to fill the hole behind. The move \((m)\) equal 3. Try with \(n=2\) and more. Find the relationship between \(n\) and \(m\).

- Take a square sheet of paper of side 10 cm. Four small squares are to be cut from the corners of the square sheet and then the paper folded at the cuts to form an open box. What should be the size of the squares cut so that the volume of the open box is maximum?

- Take an open box, four sets of marbles (ensuring that marbles in each set are of the same size) and some water. By placing the marbles and water in the box, attempt to answer the question: do larger marbles or smaller marbles occupy more volume in a given space?

- An eccentric artist says that the best paintings have the same area as their perimeter (numerically). Let us not argue whether such sizes increases the viewer’s appreciation, but only try and find what sides (in integers only) a rectangle must have if its area and perimeter are to be equal (note: there are only two such rectangles).

- Find by construction the centre of a circle, using only a 60-30 setsquare and a pencil.

- Various types of “cryptarithm”.

**EVALUATION**

The assignments/project work are to be evaluated by the subject teacher and by an External Examiner. (The External Examiner may be a teacher nominated by the Head of the school, who could be from the faculty, but not teaching the subject in the section/class. For example, a teacher of Mathematics of Class VIII may be deputed to be an External Examiner for Class X, Mathematics projects.)

The Internal Examiner and the External Examiner will assess the assignments independently.

**Award of marks (20 Marks)**

Subject Teacher (Internal Examiner) : 10 marks
External Examiner : 10 marks

The total marks obtained out of 20 are to be sent to the Council by the Head of the school.

The Head of the school will be responsible for the entry of marks on the mark sheets provided by the Council.
## INTERNAL ASSESSMENT IN MATHEMATICS- GUIDELINES FOR MARKING WITH GRADES

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Preparation</th>
<th>Concepts</th>
<th>Computation</th>
<th>Presentation</th>
<th>Understanding</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grade I</strong></td>
<td>Exhibits and selects a well-defined problem.</td>
<td>Admirable use of mathematical concepts and methods and exhibits competency in using extensive range of mathematical techniques.</td>
<td>Careful and accurate work with appropriate computation, construction and measurement with correct units.</td>
<td>Presents well stated conclusions; uses effective mathematical language, symbols, conventions, tables, diagrams, graphs, etc.</td>
<td>Shows strong personal contribution; demonstrate knowledge and understanding of assignment and can apply the same in different situations.</td>
<td>4 marks for each criterion</td>
</tr>
<tr>
<td><strong>Grade II</strong></td>
<td>Exhibits and selects routine approach.</td>
<td>Appropriate use of mathematical concepts and methods and shows adequate competency in using limited range of techniques.</td>
<td>Commits negligible errors in computation, construction and measurement.</td>
<td>Some statements of conclusions; uses appropriate math language, symbols, conventions, tables, diagrams, graphs, etc.</td>
<td>Neat with average amount of help; assignment shows learning of mathematics with a limited ability to use it.</td>
<td>3 marks for each criterion</td>
</tr>
<tr>
<td><strong>Grade III</strong></td>
<td>Exhibits and selects trivial problems.</td>
<td>Uses appropriate mathematical concepts and shows competency in using limited range of techniques.</td>
<td>Commits a few errors in computation, construction and measurement.</td>
<td>Assignment is presentable though it is disorganized in some places.</td>
<td>Lack of ability to conclude without help; shows some learning of mathematics with a limited ability to use it.</td>
<td>2 marks for each criterion</td>
</tr>
<tr>
<td><strong>Grade IV</strong></td>
<td>Exhibits and selects an insignificant problem.</td>
<td>Uses inappropriate mathematical concepts for the assignment.</td>
<td>Commits many mistakes in computation, construction and measurement.</td>
<td>Presentation made is somewhat disorganized and untidy.</td>
<td>Lack of ability to conclude even with considerable help; assignment contributes to mathematical learning to a certain extent.</td>
<td>1 mark for each criterion</td>
</tr>
<tr>
<td><strong>Grade V</strong></td>
<td>Exhibits and selects a completely irrelevant problem.</td>
<td>Not able to use mathematical concepts.</td>
<td>Inaccurate computation, construction and measurement.</td>
<td>Presentation made is completely disorganized, untidy and poor.</td>
<td>Assignment does not contribute to mathematical learning and lacks practical applicability.</td>
<td>0 mark</td>
</tr>
</tbody>
</table>
MODERN FOREIGN LANGUAGES
(Under Group – III)

(Candidates offering a Modern Foreign Language as a Group II subject may not opt for the same Language as a Group III subject)

Papers will be set in French (53), Spanish (54), German (55) and other foreign languages on request.

Aims:
1. To appreciate the language as an effective means of communication, particularly the spoken language.
2. To acquire knowledge of the elements of the language.
3. To develop an interest in the language.
4. To understand the language when spoken at normal conversational speed.
5. To understand the basic structural patterns of the language, the vocabulary and constructions.

CLASSES IX AND X

There will be one paper of two hours duration carrying 100 marks and Internal Assessment of 100 marks.

THEORY – 100 Marks

The paper will consist of five questions all of which will be compulsory.

Question 1: Candidates will be required to write, in the language, one short composition of 250 words approximately, that may include short explanations, directions, descriptions or narratives. There will be a choice of subjects that will be varied and may be suggested by language or other stimuli such as pictures or objects. (20 Marks)

Question 2: Candidates will be required to write a letter of approximately 150 words from a choice of two subjects. Suggestions may be given. The layout of the letter, with address, introduction, conclusion, etc. will form part of the assessment. (15 Marks)

Question 3: One short passage will be set for translation from the language into English. (20 Marks)

Question 4: An unseen passage of about 150 words will be given in the language. Questions in the language will be set, to be answered in the language, designed to test the candidate’s understanding of the context of the passage. (20 Marks)

Question 5: There will be a number of short answer questions to test the candidate’s knowledge of functional grammar, structure and usage of the language. (25 Marks)

As an example, marks distribution for Question 5 for the language French shall be as follows:

- Tenses: 5 marks
- Pronouns: 5 marks
- Plurals: 5 marks
- Feminines: 5 marks
- Make sentences with given words: 5 marks

Suggested textbooks for French:
1. Point de Depart – Herbert F. Collins, Mac Millan
2. En Avant – Herbert F. Collins, Mac Millan
3. Allons Redecouvrir le Francais – A Mugve

INTERNAL ASSESSMENT – 100 Marks

Candidates will be required to complete a minimum of five assignments each for Classes IX and X as assigned by the teachers.

The assignments should cover the following areas:
1. Creative writing.
2. Aural comprehension.
3. Oral.
4. Research projects.
Suggested Assignments

Creative Writing: Students are to write short compositions the stimuli being; i) a piece of recorded music; ii) a recorded series of sound; iii) a picture/photograph; iv) an opening sentence or phrase; v) a newspaper/magazine clipping or report; one piece of factual writing which should be informative or argumentative; one piece of expressive writing which is descriptive and imaginative; preparation of a film/book review.

Oral: Prepared speech/ declamation; impromptu speech / debate / discussion; report / interview; elocution; role-play / general conversation on selected topics.

Aural: Listening to a conversation/talk/reading of a short passage and then writing down the relevant or main points in the specified number of words and answering the given questions.

EVALUATION

The assignments/project work are to be evaluated by the subject teacher and by an External Examiner. The External Examiner may be a teacher nominated by the Head of the school, who could be from the faculty, but not teaching the subject in the section/class. For example, a teacher of Language of Class VIII may be deputed to be an External Examiner for Class X, Language projects.

The Internal Examiner and the External Examiner will assess the assignments independently.

Award of marks (100 Marks)

Subject Teacher (Internal Examiner): 50 marks
External Examiner: 50 marks

The total marks obtained out of 100 are to be sent to the Council by the Head of the school.

The Head of the school will be responsible for the entry of marks on the mark sheets provided by the Council.
**INTERNAL ASSESSMENT IN MODERN FOREIGN LANGUAGES - GUIDELINES FOR MARKING WITH GRADES**

**CREATIVE WRITING**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Content/Analysis of Idea, Thought/Feeling.</th>
<th>Expression/Effective Expression of Idea</th>
<th>Structure/Organisation of Material</th>
<th>Vocabulary/Use of Words, Phrases</th>
<th>Originality/Imaginative/Innovative</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>The candidate analyses the ideas, feelings and experiences effectively. Reasoning is logical and effective.</td>
<td>The candidate expresses the ideas, thoughts and feelings effectively.</td>
<td>The work is very well structured with a sense of beginning, middle and conclusion, paragraphing and appropriate sentence structures.</td>
<td>The use of vocabulary exhibits a high level of competence in handling language.</td>
<td>The work is imaginative interesting and engrossing.</td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>II</td>
<td>The candidate analyses the ideas, feelings and experiences with well-defined explanations, reasoning is logical and persuasive.</td>
<td>The candidate expresses the ideas, thoughts and feelings well and with clarity.</td>
<td>The work is very well structured with some sense of conclusion and of paragraph lengths.</td>
<td>The vocabulary exhibits competence of word usage; correctness of grammar and spelling.</td>
<td>The candidate's work is quite interesting and engrossing.</td>
<td><strong>3</strong></td>
</tr>
<tr>
<td>III</td>
<td>The candidate analyses the idea, feelings and experiences with a fair degree of detail and explanation. Reasoning is fairly logical and persuasive.</td>
<td>The candidate expresses the ideas, thoughts and feelings fairly well and with a fair degree of clarity.</td>
<td>The work is fairly well structured; Candidate follows simple paragraphing.</td>
<td>The candidate uses straightforward vocabulary and fairly good pattern of spellings.</td>
<td>The candidate demonstrates the ability to sustain the interest of the reader.</td>
<td><strong>2</strong></td>
</tr>
<tr>
<td>IV</td>
<td>The candidate attempts to analyze ideas, feelings and experiences with simple explanation and detail. Reasoning and arguments are not very convincing.</td>
<td>The candidate expresses the idea, thoughts and feelings intelligibly and in simple language.</td>
<td>The work shows some understanding of paragraphing and structure.</td>
<td>The candidate's vocabulary is limited and the spelling, punctuation and grammar is sometimes poor.</td>
<td>The candidate is, to some extent, able to sustain the interest of the reader.</td>
<td><strong>1</strong></td>
</tr>
<tr>
<td>V</td>
<td>The candidate attempts a basic analysis of ideas, feelings and experiences with few simple explanations and few details. Is unable to present proper arguments.</td>
<td>The candidate is unable to expresses the ideas, thoughts and feelings, uses simple language and work is not very intelligible.</td>
<td>The candidate does not display an understanding of structure, paragraphing.</td>
<td>There is consistent weakness in spelling, punctuation and grammar.</td>
<td>The candidate is unable to sustain the interest of the reader.</td>
<td><strong>0</strong></td>
</tr>
<tr>
<td>Grade</td>
<td>Fluency of Language</td>
<td>Subject Matter</td>
<td>Organization</td>
<td>Vocabulary/ Delivery</td>
<td>Understanding</td>
<td>Gesture</td>
</tr>
<tr>
<td>-------</td>
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<td>---------</td>
</tr>
<tr>
<td>I</td>
<td>Speaks with fluency and has full operational command over the language.</td>
<td>Matter is relevant, rich in content and original.</td>
<td>Content is well sequenced and well organized.</td>
<td>Uses appropriate vocabulary and pronounces words correctly.</td>
<td>While speaking, the candidate emphasizes the important points.</td>
<td>Uses natural and spontaneous gestures that are not out of place.</td>
</tr>
<tr>
<td>II</td>
<td>The candidate speaks with fairly good fluency and has reasonable operational command of the language.</td>
<td>The subject matter is mostly relevant, consisting of a few original ideas.</td>
<td>The content is satisfactorily sequenced and well organized.</td>
<td>The candidate pronounces most words correctly and uses simple vocabulary.</td>
<td>While speaking the candidate emphasizes most important points.</td>
<td>Uses some natural gestures.</td>
</tr>
<tr>
<td>III</td>
<td>The candidate speaks with poor fluency and does not communicate except for the most basic information.</td>
<td>The subject matter is irrelevant and lacks originality.</td>
<td>The subject content is very poor and lacks organisational structure.</td>
<td>The candidate pronounces many words incorrectly and uses inappropriate vocabulary.</td>
<td>While speaking, the candidate emphasizes some important points.</td>
<td>Uses very few natural gestures.</td>
</tr>
<tr>
<td>IV</td>
<td>The candidate cannot communicate even the most basic information.</td>
<td>The subject matter is negligible.</td>
<td>The subject content comprises of mere words with no structured sentences.</td>
<td>The candidate is unable to correctly pronounce most words and has a limited vocabulary.</td>
<td>While speaking, the candidate is unable to emphasize important points.</td>
<td>Uses no natural gestures.</td>
</tr>
</tbody>
</table>
# INTERNAL ASSESSMENT IN MODERN FOREIGN LANGUAGES - GUIDELINES FOR MARKING WITH GRADES

## AURAL ASSIGNMENT

<table>
<thead>
<tr>
<th>Grade</th>
<th>Understanding/ Comprehension Main Idea, Central Theme</th>
<th>Recall</th>
<th>Vocabulary</th>
<th>Context/ Correlation to Other Areas</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>The candidate accurately understands the central idea of the passage as well as the relevant points in the selected passage/talk.</td>
<td>The candidate recalls all the important points made (written/verbal).</td>
<td>The candidate uses appropriate and correct vocabulary while recalling the points made.</td>
<td>The candidate clearly understands the context and can widely correlate the passage to the other areas.</td>
<td>3</td>
</tr>
<tr>
<td>II</td>
<td>The candidate gives ideas fairly close to the central/main idea of the passage as well as understand some of the relevant points heard in the selected passage/talk.</td>
<td>The candidate recalls some of the important points made (written/verbal).</td>
<td>The candidate uses correct but simple vocabulary while recalling the points made.</td>
<td>The candidate can moderately understand the context of the passage and can moderately correlate the passage to the other areas.</td>
<td>2</td>
</tr>
<tr>
<td>III</td>
<td>The candidate cannot fully comprehend the passage and gives only a few ideas related to the central theme of the passage.</td>
<td>The candidate recalls very few of the important points made (written/verbal).</td>
<td>The candidate makes various errors in vocabulary while recalling the points made.</td>
<td>The candidate can only faintly understand the context of the passage and relate it to the other areas.</td>
<td>1</td>
</tr>
<tr>
<td>IV</td>
<td>The candidate is neither able to understand the central/main idea of the passage; nor able to understand relevant points heard in the passage/talk.</td>
<td>The candidate is unable to recall the important points made (written/verbal)</td>
<td>The candidate uses incorrect vocabulary while recalling the points made.</td>
<td>The candidate is unable to understand the context of the passage and is unable to correlate the passage to the other areas.</td>
<td>0</td>
</tr>
</tbody>
</table>
MODERN FOREIGN LANGUAGES
(Under Group I)

(Candidates opting for a Modern Foreign Language as a Second Language in Group I may not opt for the same language under Modern Foreign Languages in Group II and Group III).

The Question Papers will be set in Modern Foreign Languages on request. The rubric for all the Modern Foreign Languages will be the same. The French (27), German (28) and Spanish (36) Scope of Syllabus of the Grammar portion has been defined in detail and the Teaching and Resource books are also listed.

Aims:
1. To develop and integrate the use of the four language skills i.e. listening, speaking, reading and writing.
2. To use the language effectively and appropriately on topics of everyday life situations.
3. To develop an interest in the appreciation of the language.
4. To develop an intercultural awareness.
5. To enhance the ability of the candidates to express their ideas and feelings in their own words and for them to understand the use of correct language.
6. To appreciate the language as an effective means of communication.
7. To understand language when spoken at normal conversational speed in everyday life situations.
8. To understand the basic structural patterns of the language, vocabulary and constructions.

CLASSES IX AND X

There will be one paper of three hours duration carrying 80 marks and Internal Assessment of 20 marks.

1. Composition:
   Candidates will be required to write, in the language, one short composition which may include short explanations, directions, descriptions or narratives. There will be a choice of subjects which will be varied and may be suggested by language or other stimuli such as pictures or objects.

2. Letter:
   Candidates will be required to write a letter from a choice of either a formal or an informal letter. Suggestions may be given. The layout of the letter with address, introduction, conclusion, etc., will form part of the assessment.

3. Comprehension:
   An unseen passage of about 150 words will be given in the language. Questions based on the given passage, will be set, to be answered in the language, so as to test the candidates’ understanding of the content of the passage.

4. Grammar:
   This will consist of tests in vocabulary, syntax and idiom, e.g., synthesis in sentence construction, formation of sentences in correctly embodying given words or forms. The question will not require detailed knowledge of grammatical definitions.

5. Translation and/or Dialogue Writing:
   - One short passage will be set for translation from the language into English.
   - One passage will be set for translation from English into the language.
   - Dialogue writing (Around 150 words) based on situations faced in everyday life. Hints may be given.

Annexe
Communication (oral and written) skills that can be covered from any book used for teaching:

1. Myself
   - Self, Family and Friends
   - Important Events
   - Interests and Hobbies
   - Home and Locality
• Daily Routine
• School

2. Holiday Time & Travel
• Travel, Transport and Tourism
• Accommodation
• Restaurant
• Directions
• Holiday Activities
• Services

3. Work & Lifestyle
• Home Life
• Everyday Living and Health
• Work Experience
• Leisure
• Shopping
• The Environment

Note: No textbooks are prescribed.

NOTE: The Class X - ICSE examination paper will be set on the entire syllabus prescribed for the subject. The Class IX internal examination is to be conducted on the portion of this syllabus that is covered during the academic year.

The Council has not prescribed bifurcation of the syllabus for this subject.

INTERNAL ASSESSMENT – 20 Marks

1. Schools will prepare, conduct and record assessments of the Listening, Speaking and Creative Writing Skills of candidates as follows:
   
   Class IX: Three assessments in the course of the year.
   
   Class X: Two assessments in the course of the year.

2. Pattern of Assessment.

   a) Listening Skills
   
   A passage of about 300 words is read aloud by the examiner twice at normal reading speed (about 110 words a minute). Candidates may make brief notes during the readings. They then answer an objective type test based on the passage, on the paper provided.

   b) Speaking Skills
   
   Each candidate is required to make an oral presentation for about two minutes, which will be followed by a discussion on the subject with the examiners, for about three minutes.

   Subjects for presentation may include narrating an experience, providing a description, giving directions, expressing an opinion, giving a report, relating an anecdote or commenting on a current event.

   A candidate may refer to brief notes in the course of the presentation but reading or excessive dependence on notes will be penalized.

   It is recommended that candidates be given an hour for preparation of their subject for presentation and that they be given a choice of subject, on a common paper.

   c) Creative Writing Skills
   
   Each candidate is required to write short compositions based on the suggested assignments.

   SUGGESTED ASSIGNMENTS FOR
   
   CLASSES IX AND X

   Aural: Listening to a conversation/talk/reading of a short passage and then writing down the relevant or main points in the specified number of words and answering the given questions.

   Oral: Prepared speech/declamation; impromptu speech/debate/discussion; report/interview; elocution; role-play / general conversation on selected topics.

   Creative Writing: Students are to write short compositions, the stimuli may be:

   • a piece of recorded music.
   • a series of recorded sounds.
   • a picture/photograph.
   • an opening sentence or phrase.
   • a newspaper/magazine clipping or report.
   • one piece of factual writing which should be informative or argumentative.
   • one piece of expressive writing which is descriptive and imaginative.
   • preparation of film/book review.
It is also suggested that students be made aware of contemporary forms of written communication, such as fax, memo, etc.

**EVALUATION**

The assessment will be conducted jointly by the subject teacher and the external examiner who will each assess the candidate. (The External Examiner may be a teacher nominated by the Head of the School who could be from the faculty **but not teaching the language in the section/class**. For example, a teacher of the language of Class VIII may be deputed to be an External Examiner for Class X Language projects).

**AWARD OF MARKS**

Subject Teacher (Internal Examiner) 10 marks  
External Examiner 10 marks  
The total marks obtained out of 20 (**Listening Skills**: 5 marks; **Speaking Skills**: 5 marks and **Creative Writing**: 10 marks) are to be sent to the Council by the Head of the School. The Head of the School will be responsible for the entry of marks, on the mark sheets provided by the Council.

Schools are required to maintain a record of all assessments conducted in Listening, Speaking and Creative Writing Skills for candidates of Classes IX and X. These include copies of the assessments tests, topics for presentation and marks awarded. This record will be maintained for a period of up to 2 months after the declaration of the results of ICSE (10) examinations of the candidates concerned.
# Internal Assessment in Modern Foreign Languages - Guidelines for Marking with Grades

## Creative Writing (Classes IX & X)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Content/Analysis of Idea, Thought/ Feeling</th>
<th>Expression/ Effective Expression of Idea</th>
<th>Structure/ Organisation of Material</th>
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<th>Originality/ Imaginative/ Innovative</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>The candidate analyses the ideas, feelings and experiences effectively. Reasoning is logical and effective.</td>
<td>The candidate expresses the ideas, thoughts and feelings effectively.</td>
<td>The work is very well structured an introduction, body and conclusion, paragraphing and appropriate sentence construction.</td>
<td>The use of vocabulary exhibits a high level of competence in handling language.</td>
<td>The work is imaginative interesting and engrossing.</td>
<td>4</td>
</tr>
<tr>
<td>II</td>
<td>The candidate analyses the ideas, feelings and experiences with well defined explanations, reasoning is logical and persuasive.</td>
<td>The candidate expresses the ideas thoughts and feelings well and with clarity.</td>
<td>The work is very well structured with some sense of conclusion and of paragraph lengths.</td>
<td>The vocabulary exhibits competence of word usage; correctness of grammar and spelling.</td>
<td>The candidate's work is quite interesting and engrossing.</td>
<td>3</td>
</tr>
<tr>
<td>III</td>
<td>The candidate analyses the idea, feelings and experiences with a fair degree of detail and explanation. Reasoning is fairly logical and persuasive.</td>
<td>The candidate expresses the ideas, thoughts and feelings fairly well and with a fair degree of clarity.</td>
<td>The work is fairly well structured; candidate follows simple paragraphing.</td>
<td>The candidate uses straightforward vocabulary and fairly good pattern of spellings.</td>
<td>The candidate demonstrates the ability to sustain the interest of the reader.</td>
<td>2</td>
</tr>
<tr>
<td>IV</td>
<td>The candidate attempts to analyze ideas, feelings and experiences with simple explanation and detail. Reasoning and arguments are not very convincing.</td>
<td>The candidate expresses the idea, thoughts and feelings intelligibly and in simple language.</td>
<td>The work shows some understanding of paragraphing and structure.</td>
<td>The candidate's vocabulary is limited and the spelling, punctuation and grammar is sometimes poor.</td>
<td>The candidate is, to some extent, able to sustain the interest of the reader.</td>
<td>1</td>
</tr>
<tr>
<td>V</td>
<td>The candidate attempts a basic analysis of ideas, feelings and experiences with few simple explanations and few details. Is unable to present proper arguments.</td>
<td>The candidate is unable to expresses the ideas, thoughts and feelings, uses simple language and work is not very intelligible.</td>
<td>The candidate does not display an understanding of structure and paragraphing.</td>
<td>There is consistent weakness in spelling, punctuation and grammar.</td>
<td>The candidate is unable to sustain the interest of the reader.</td>
<td>0</td>
</tr>
</tbody>
</table>
### INTERNAL ASSESSMENT IN MODERN FOREIGN LANGUAGES - GUIDELINES FOR MARKING WITH GRADES

**AURAL ASSIGNMENT (CLASS IX)**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Understanding/Comprehension Main Idea, Central Theme</th>
<th>Recall</th>
<th>Vocabulary</th>
<th>Context/Correlation to Other Areas</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>The candidate accurately understands the central idea of the passage as well as the relevant points in the selected passage/talk.</td>
<td>The candidate recalls all the important points made (written/verbal).</td>
<td>The candidate uses appropriate and correct vocabulary while recalling the points made.</td>
<td>The candidate clearly understands the context and can widely correlate the passage to the other areas.</td>
<td>3</td>
</tr>
<tr>
<td>II</td>
<td>The candidate gives ideas fairly close to the central/main idea of the passage as well as understand some of the relevant points heard in the selected passage/talk.</td>
<td>The candidate recalls some of the important points made (written/verbal).</td>
<td>The candidate uses correct but simple vocabulary while recalling the points made.</td>
<td>The candidate can moderately understand the context of the passage and can moderately correlate the passage to the other areas.</td>
<td>2</td>
</tr>
<tr>
<td>III</td>
<td>The candidate cannot fully comprehend the passage and gives only a few ideas related to the central theme of the passage.</td>
<td>The candidate recalls very few of the important points made (written/verbal).</td>
<td>The candidate makes various errors in vocabulary while recalling the points made.</td>
<td>The candidate can only faintly understand the context of the passage and relate it to the other areas.</td>
<td>1</td>
</tr>
<tr>
<td>IV</td>
<td>The candidate is neither able to understand the central/main idea of the passage; nor able to understand relevant points heard in the passage/talk.</td>
<td>The candidate is unable to recall the important points made (written/verbal)</td>
<td>The candidate uses incorrect vocabulary while recalling the points made.</td>
<td>The candidate is unable to understand the context of the passage and is unable to correlate the passage to the other areas.</td>
<td>0</td>
</tr>
<tr>
<td>Grade</td>
<td>Fluency of Language</td>
<td>Subject Matter</td>
<td>Organization</td>
<td>Vocabulary/Delivery</td>
<td>Understanding</td>
</tr>
<tr>
<td>-------</td>
<td>-----------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>--------------------------------</td>
<td>-------------------------------------------------------------</td>
<td>------------------------------------------------------------</td>
</tr>
<tr>
<td>I</td>
<td>Speaks with fluency and has full operational command over the language.</td>
<td>Matter is relevant, rich in content and original.</td>
<td>Content is well sequenced and well organized.</td>
<td>Uses appropriate vocabulary and pronounces words correctly.</td>
<td>While speaking, the candidate emphasizes the important points.</td>
</tr>
<tr>
<td>II</td>
<td>The candidate speaks with fairly good fluency and has reasonable operational command of the language.</td>
<td>The subject matter is mostly relevant, consisting of a few original ideas.</td>
<td>The content is satisfactorily sequenced and well organized.</td>
<td>The candidate pronounces most words correctly and uses simple vocabulary.</td>
<td>While speaking the candidate emphasizes most important points.</td>
</tr>
<tr>
<td>III</td>
<td>The candidate speaks with poor fluency and does not communicate except for the most basic information.</td>
<td>The subject matter is irrelevant and lacks originality.</td>
<td>The subject content is very poor and lacks organisational structure.</td>
<td>The candidate pronounces many words incorrectly and uses inappropriate vocabulary.</td>
<td>While speaking, the candidate emphasizes some important points.</td>
</tr>
<tr>
<td>IV</td>
<td>The candidate cannot communicate even the most basic information.</td>
<td>The subject matter is negligible.</td>
<td>The subject content comprises of mere words with no structured sentences.</td>
<td>The candidate is unable to correctly pronounce most words and has a limited vocabulary.</td>
<td>While speaking, the candidate is unable to emphasize important points.</td>
</tr>
</tbody>
</table>
MODERN FOREIGN LANGUAGE
(Under Group – II)

(Candidates offering a Modern Foreign Language as a Group I subject may not opt for the same Language as a Group II subject.)

Papers will be set in French (77), Spanish (85), German (80) and other Foreign Languages on request.

Aims:
1. To appreciate the language as an effective means of communication and in particular, the spoken language.
2. To acquire knowledge of the elements of the language.
3. To develop interest in the language.
4. To understand the language when spoken at normal conversational speed.
5. To understand the basic structural patterns of the language, the vocabulary and constructions.

CLASSES IX AND X

There will be one paper of two hours duration carrying 80 marks and Internal Assessment of 20 marks.

The paper will consist of five questions all of which will be compulsory.

Question 1: Candidates will be required to write, in the language, one short composition of 250 words approximately, which may include short explanations, directions, descriptions or narratives. There will be a choice of subjects which will be varied and may be suggested by language or other stimuli such as pictures or objects. (20 Marks)

Question 2: Candidates will be required to write a letter of approximately 150 words from a choice of two subjects. Suggestions may be given. The layout of the letter, with address, introduction, conclusion, etc. will form part of the assessment. (10 Marks)

Question 3: This will consist of tests in vocabulary, syntax and idiom, synthesis in sentence construction, formation of sentences in the language correctly embodying given words or forms. The question will not require any knowledge of grammatical terms. (20 Marks)

Question 4: An unseen passage of about 150 words will be given in the language. Questions in the language will be set, to be answered in the language, designed to test the candidate’s understanding of the context of the passage. (20 Marks)

Question 5: One short passage will be set for translation from the language into English. (10 Marks)

Note: No textbooks are prescribed.

INTERNAL ASSESSMENT

The minimum number of assignments for each academic year

Class IX: Two or three assignments of reasonable length/duration.

Class X: Two or three assignments of reasonable length/duration.

Suggested Assignments

Class IX - Creative writing: Students are to write short compositions the stimuli being; i) a piece of recorded music; ii) a recorded series of sound; iii) a picture/photograph; iv) an opening sentence or phrase; v) a newspaper/magazine clipping or report; one piece of factual writing which should be informative or argumentative; one piece of expressive writing which is descriptive and imaginative; preparation of the film/book review.

Class X - Oral: Prepared speech/ declamation; impromptu speech / debate / discussion; report / interview; elocution; role-play / general conversation on selected topics.

Aural: Listening to a conversation/talk/reading of a short passage and then writing down the relevant or main points in the specified number of words and answering the given questions.
EVALUATION

The assignments/project works are to be evaluated by the subject teacher and by an External Examiner. (The External Examiner may be a teacher nominated by the Head of the school, who could be from the faculty, but not teaching the subject in the section/class. For example, a teacher of Language of Class VIII may be deputed to be an External Examiner for Class X, Language projects.)

The Internal Examiner and the External Examiner will assess the assignments independently.

Award of marks (20 Marks)

Subject Teacher (Internal Examiner) 10 marks
External Examiner 10 marks

The total marks obtained out of 20 are to be sent to the Council by the Head of the school.

The Head of the school will be responsible for the entry of marks on the mark sheets provided by the Council.
<table>
<thead>
<tr>
<th>Grade</th>
<th>Content/Analysis of Idea, Thought/Feeling</th>
<th>Expression/Effective Expression of Idea</th>
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<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>The candidate analyses the ideas, feelings and experiences effectively. Reasoning is logical and effective.</td>
<td>The candidate expresses the ideas, thoughts and feelings effectively.</td>
<td>The work is very well structured with a sense of beginning, middle and conclusion, paragraphing and appropriate sentence structures.</td>
<td>The use of vocabulary exhibits a high level of competence in handling language.</td>
<td>The work is imaginative interesting and engrossing.</td>
<td>4</td>
</tr>
<tr>
<td>II</td>
<td>The candidate analyses the ideas, feelings and experiences with well-defined explanations, reasoning is logical and persuasive.</td>
<td>The candidate expresses the ideas, thoughts and feelings well and with clarity.</td>
<td>The work is very well structured with some sense of conclusion and of paragraph lengths.</td>
<td>The vocabulary exhibits competence of word usage; correctness of grammar and spelling.</td>
<td>The candidate's work is quite interesting and engaging.</td>
<td>3</td>
</tr>
<tr>
<td>III</td>
<td>The candidate analyses the idea, feelings and experiences with a fair degree of detail and explanation. Reasoning is fairly logical and persuasive.</td>
<td>The candidate expresses the ideas, thoughts and feelings fairly well and with a fair degree of clarity.</td>
<td>The work is fairly well structured; Candidate follows simple paragraphing.</td>
<td>The candidate uses straightforward vocabulary and fairly good pattern of spellings.</td>
<td>The candidate demonstrates the ability to sustain the interest of the reader.</td>
<td>2</td>
</tr>
<tr>
<td>IV</td>
<td>The candidate attempts to analyze ideas, feelings and experiences with simple explanation and detail. Reasoning and arguments are not very convincing.</td>
<td>The candidate expresses the idea, thoughts and feelings intelligibly and in simple language.</td>
<td>The work shows some understanding of paragraphing and structure.</td>
<td>The candidate's vocabulary is limited and the spelling, punctuation and grammar is sometimes poor.</td>
<td>The candidate is, to some extent, able to sustain the interest of the reader.</td>
<td>1</td>
</tr>
<tr>
<td>V</td>
<td>The candidate attempts a basic analysis of ideas, feelings and experiences with few simple explanations and few details. Is unable to present proper arguments.</td>
<td>The candidate is unable to expresses the ideas, thoughts and feelings, uses simple language and work is not very intelligible.</td>
<td>The candidate does not display an understanding of structure, paragraphing.</td>
<td>There is consistent weakness in spelling, punctuation and grammar.</td>
<td>The candidate is unable to sustain the interest of the reader.</td>
<td>0</td>
</tr>
</tbody>
</table>
**INTERNAL ASSESSMENT IN MODERN FOREIGN LANGUAGES - GUIDELINES FOR MARKING WITH GRADES (CLASS X)**

**ORAL ASSIGNMENT**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Fluency of Language</th>
<th>Subject Matter</th>
<th>Organization</th>
<th>Vocabulary/ Delivery</th>
<th>Understanding</th>
<th>Gesture</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Speaks with fluency and has full operational command over the language.</td>
<td>Matter is relevant, rich in content and original.</td>
<td>Content is well sequenced and well organized.</td>
<td>Uses appropriate vocabulary and pronounces words correctly.</td>
<td>While speaking, the candidate emphasizes the important points.</td>
<td>Uses natural and spontaneous gestures that are not out of place.</td>
<td>3</td>
</tr>
<tr>
<td>II</td>
<td>The candidate speaks with fairly good fluency and has reasonable operational command of the language.</td>
<td>The subject matter is mostly relevant, consisting of a few original ideas.</td>
<td>The content is satisfactorily sequenced and well organized.</td>
<td>The candidate pronounces most words correctly and uses simple vocabulary.</td>
<td>While speaking the candidate emphasizes most important points.</td>
<td>Uses some natural gestures.</td>
<td>2</td>
</tr>
<tr>
<td>III</td>
<td>The candidate speaks with poor fluency and does not communicate except for the most basic information.</td>
<td>The subject matter is irrelevant and lacks originality.</td>
<td>The subject content is very poor and lacks organisational structure.</td>
<td>The candidate pronounces many words incorrectly and uses inappropriate vocabulary.</td>
<td>While speaking, the candidate emphasizes some important points.</td>
<td>Uses very few natural gestures.</td>
<td>1</td>
</tr>
<tr>
<td>IV</td>
<td>The candidate cannot communicate even the most basic information.</td>
<td>The subject matter is negligible.</td>
<td>The subject content comprises of mere words with no structured sentences.</td>
<td>The candidate is unable to correctly pronounce most words and has a limited vocabulary.</td>
<td>While speaking, the candidate is unable to emphasize important points.</td>
<td>Uses no natural gestures.</td>
<td>0</td>
</tr>
<tr>
<td>Grade</td>
<td>Understanding/ Comprehension Main Idea, Central Theme</td>
<td>Recall</td>
<td>Vocabulary</td>
<td>Context/ Correlation to Other Areas</td>
<td>Marks</td>
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<td></td>
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<tr>
<td>I</td>
<td>The candidate accurately understands the central idea of the passage as well as the relevant points in the selected passage/talk.</td>
<td>The candidate recalls all the important points made (written/verbal).</td>
<td>The candidate uses appropriate and correct vocabulary while recalling the points made.</td>
<td>The candidate clearly understands the context and can widely correlate the passage to the other areas.</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>The candidate gives ideas fairly close to the central/main idea of the passage as well as understand some of the relevant points heard in the selected passage/talk.</td>
<td>The candidate recalls some of the important points made (written/verbal).</td>
<td>The candidate uses correct but simple vocabulary while recalling the points made.</td>
<td>The candidate can moderately understand the context of the passage and can moderately correlate the passage to the other areas.</td>
<td>2</td>
<td></td>
<td></td>
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<tr>
<td>III</td>
<td>The candidate cannot fully comprehend the passage and gives only a few ideas related to the central theme of the passage.</td>
<td>The candidate recalls very few of the important points made (written/verbal).</td>
<td>The candidate makes various errors in vocabulary while recalling the points made.</td>
<td>The candidate can only faintly understand the context of the passage and relate it to the other areas.</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>The candidate is neither able to understand the central/main idea of the passage; nor able to understand relevant points heard in the passage/talk.</td>
<td>The candidate is unable to recall the important points made (written/verbal)</td>
<td>The candidate uses incorrect vocabulary while recalling the points made.</td>
<td>The candidate is unable to understand the context of the passage and is unable to correlate the passage to the other areas.</td>
<td>0</td>
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</tr>
</tbody>
</table>
PERFORMING ARTS (91 – 95)

Aims:
1. To develop a perceptive, sensitive and critical response to music, dance and drama in its historical and cultural contexts.
2. To stimulate and develop an appreciation and enjoyment of music, dance and drama through active involvement.
3. To balance the demands of disciplined skills and challenging standards in an environment of emotional, aesthetic, imaginative and creative development.
4. To develop performing skills, and so encourage a participation in the wide range of performance activities likely to be found in the school and community.
5. To develop a co-operative attitude through the organisation and participation associated with music, dance and drama.
6. To provide an appropriate body of knowledge with understanding, and to develop appropriate skills as a basis for further study or leisure or both.

One of the following five syllabuses may be offered:

- Hindustani Music (91)
- Carnatic Music (92)
- Western Music (93)
- Indian Dance (94)
- Drama (95)

HINDUSTANI MUSIC (91)

CLASS IX

There will be one paper of two hours carrying 100 marks and Internal Assessment of 100 marks. The syllabus is divided into three sections:

Section A - Vocal Music
Section B - Instrumental Music
Section C - Tabla

Candidates will be required to attempt five questions in all, two questions from Section A and either three questions from Section B or three questions from Section C.

PART 1: THEORY – 100 Marks

SECTION A: HINDUSTANI VOCAL MUSIC THEORY

1. (a) Non-detail terms: Sangeet; two main systems of Indian Music; Naad, Saptak; Thaat; Alankar; Raga, Janak-Janya Ragas and Ashraya raga; Vadi, Samvadi, Anuvadi, Vivadi; Aroha, Avaroha, Pakad; Chal and AchalSwara.
   Sthayi, Antara; Taan, Alaap; Matra, Vibhag, Taal, Avartan, Sam, Tali, Khali, Theka; Thah (Barabar or Ekgun), Dugun, Chaugun.

   (b) Detailed topics: Swara (Shuddha and VikritSwars), Jati (Odava, Shadava, Sampoorna), Laya (Vilambit, Madhya, Drut), Varna (Sthai, Arohi, Avarohi, Sanchari), Forms of Geet – Swaramalika, Lakshangeet, Khayal (BadaKhayal and ChotaKhayal), Dhrupad.

2. Description of the five ragas mentioned under ‘practical’ – their Thaat, Jati, Vadi-Samvadi, Swaras (Varjit and Vikrit), Aroha-Avaroha, Pakad, time of raga and similar raga.

3. Description of the five taals mentioned under ‘practical’; writing them in Thah and DugunTaal notation.

4. Knowledge of musical notation system of Pt. V.N. Bhatkhande (Swara and Taal-lipi); writing ChotaKhayal, Swaramalika and Lakshangeet, Dhrupad (only Sthayi and Antara) in musical notation.

5. Identification of ragas with the help of given short Swara-vistar.

PRACTICAL

1. Singing and identifying Shuddha and Vikrit Swaras.
2. Idea of Laya; Vilambit, Madhya and Drutlayas.
3. Singing of 10 alankars in Dugun and Chaugun Laya.
4. Yaman, Khamaj, Kafi, Bhairavi, Alhaiya Bilawal - Singing of one Madhya laya khayal song in any three ragas as mentioned above (with aalaps and taans). Lakshangeet and Swarmalika in the other two ragas, One Dhrupad Geet in any one raga (Only sthai and antara); National Anthem - Jana Gana Mana and National Song - Vande Mataram (notation is not required).
5. Padhant (Reciting) : Thekas of the following five taals with Taali, Khali shown on hands: Teen Taal, Keharwa, Dadra, Ektaal and Chartaal; their Dugun also.
6. Identification of ragas.

SECTION B
HINDUSTANI INSTRUMENTAL MUSIC
(EXCLUDING TABLA)

THEORY

1. (a) Non-detail terms : Sangeet; two main systems of Indian Music; Naad, Saptak; Thaat; Alankar; Raga, Janak-Janya Ragas and Ashraya raga; Vadi, Samvadi, Anuvadi, Vivadi; Aroha, Avaroha, Pakad; Chal and Achal Swar.

   Chal and Achal Thaat, Toda, Alaap; Matra, Vibhag, Taal, Avartaan, Sam, Taali, Khali, Theka; Thah (Barabar or Ekgun), Dugun, Chaugun.

(b) Detailed topics: Swara (Shuddha and Vikrit Swars), Jati (Odava, Shadava, Sampoorna), Laya (Vilambit, Madhya, Drut), Varna (Sthai, Arohi, Avarohi, Sanchari), Forms of Gat (Maseethkani and Razakhani).

2. Description of the five ragas mentioned under ‘practical’ – their Thaat, Jati, Vadi-Samvadi, Swaras (Varjit and Vikrit), Aroha-Avaroha, Pakad, time of raga and similar raga.
3. Description of the five taals mentioned under ‘practical’; writing them in Thah and Dugun in Taal notation.
4. Knowledge of musical notation system of Pt. V.N. Bhatkhande (swara and Taal-lipi); writing Razakhani Gat (with Bols).
5. Identification of ragas with the help of given short swara-vistar.

PRACTICAL

1. Handling of the instrument; correct posture and finger movement.
3. Yaman, Khamaj, Kafi, Bhairavi, Alhaiya Bilawal – Playing of one Razakhani Gat in all the ragas as mentioned above (with aalaps and todas). Dhun in any raga mentioned above. National Anthem - Jana Gana Mana and National Song – Vande Mataram (notation is required).
4. Padhant (Reciting) - Thekas of the following five taals with Taali, Khali shown on hands: Teen Taal, Keharwa, Dadra, Ektaal and Chartaal; their Dugun also.
5. Identification of ragas.
6. Playing of simple Bols like Da Ra Da Ra, Da Ra Dir Dir, Da Dir, Da Ra, etc.
SECTION C
HINDUSTANI INSTRUMENTAL MUSIC
(PERCUSION - TABLA)

THEORY

1. (a) Non-detail terms: Matra, Taal, Vibhag; Sam; Tali, Khali, Avartan, Theka, Kayada, Palta, Tihai, Mohra, Mukhada, Tukda, Kismen (varieties of Theka) and Peshkara.

(b) Detailed topic: Laya (Vilambit, Madhya and Drut), Layakari (Thah, Dugun, Tigun and Chaugun), Origin and development of Tabla.

2. Writing in Taal-notation of the six Taals mentioned under ‘practical’; with their simple development; writing of Thekas in Thah, Dugun and Chaugun layakaris.

3. Basic knowledge of: Sangeet, Swara and Saptak,

PRACTICAL

1. Knowledge and practice of Vilambit, Madhya and Drut layas as also of Thah, Dugun and Chaugun, with the help of Tali, Khali and matras on hands while reciting Thekas of Taals prescribed.

2. Technique of producing main syllables of Tabla and Bayan (Varnas) like Ta, Dha, Ge, Kat, Tin, Dhin, Tita etc.

3. Playing of Thekas of the following six Taals with development: two kaayadas and its four paltas with tihai in Teentaal, One tukda in each Jhaptaal and Ektaal, one paran in chaartaal, two kismen each in Dadra and KeharwaTaal.

4. Accompaniment (Sangat) in Taals (Dadra and Keharwa).

5. Padhant (Reciting) - Thekas in Thah and Dugun. Simple developments of Taals mentioned in para (3), showing Taali, Khali etc. on hands.
The syllabus is divided into three sections:

Section A - Vocal Music
Section B - Instrumental Music
Section C – Tabla.

SECTION A
HINDUSTANI VOCAL MUSIC

THEORY

1. (a) Non-detail terms: Sound (Dhwani), Meend, Kan (Sparsha swar), Gamak, Khatka, Tigun, Tappa, Thumri, Poorvang, Uttarang, Poorva Raga and Uttar Raga.

(b) Detailed topics: Nad, three qualities of Nad (volume, pitch, timbre); Shruti and placement of 12 swaras; Dhrupad and Dhamar; relationship between Vadi Swar and time of singing raga.

2. Description of the 10 ragas of Classes IX and X mentioned under ‘practical’ – their Thaat, Jati, Vadi-Samvadi, Swaras (Varjit and Vikrit), Aroha-Avaroha, Pakad, time of raga and similar raga.

3. Writing in the Taal notation, all the 10 Taals learnt in Classes IX and X, their Dugun; Tigun and Chaugun.

4. Knowledge of musical notation system of Pt. V.N. Bhatkhande (swara and Taal-lipi); writing ChotaKhayal, BadaKhayal, Swarmalika and Lakshangeet.

5. Identification of Ragas of Classes IX and X (a few note combinations given).


7. A brief description of 4 eminent vocalists (present or recent past).

8. Names of different parts (components) of the Tanpura with the help of a simple sketch. Tuning and handling of the instrument.

PRACTICAL

1. Singing of three alankars in Teental, Jhapaat and Dadra each.

2. Bhairav, Bhopaali, Desh, Bageshwari, Malkauns - Singing of Chotakhayal song in any three ragas as mentioned above (with alaaps and taans). Lakshangeet and Swarmalika in the other two ragas, One Badakhayal in any one of the above mentioned ragas (Only sthai and antara); Tarana (notation of Tarana is not required).

3. Padhant (Reciting)-Thekas of the following new taals as also those learnt in Class IX in Dugun and Chaugun, showing Tali, Khali and Matras on hands: Rupak, Jhapaat, Tilwada, Dhamar and Deepchandi (Chanchar).

4. Identification of ragas learnt in Classes IX and X.

SECTION B
HINDUSTANI INSTRUMENTAL MUSIC
(EXCLUDING TABLA)

THEORY

1. (a) Non-detail terms: Sound (Dhwani); Kan; Meend, Soot; Zamzama; Gamak; Baj; Khatka; Jhala; Tigun.

(b) Detailed topics: Nad; three qualities of Nad (volume, pitch, timbre); Shruti and placement of 12 swaras; Maseetkhani and Razakhani Gat; Relationship between Vadi Swar and time of playing Raga.

2. Origin and the development of the instrument. Methods of handling instruments; tuning of the instrument with a labelled diagram.

3. Complete description of all the 10 ragas mentioned under ‘Practical’ in Classes IX and X.

4. Writing in the Tal notation, all the 10 Taals learnt in Classes IX and X, their Dugun; Tigun and Chaugun.

5. Writing in complete musical notation of the Maseetkhani and Razakhani Gats.

6. Identification of Ragas (a few note combinations given) of Classes IX and X.

8. Brief description of four eminent instrumentalists (present or recent past).

PRACTICAL

1. Playing of three alankars in Teental, Jhaptal and Dadra each.

2. Bhairav, Bhopali, Desh, Bageshwari, Malkauns – Playing of five Razakhani Gat in all the above five mentioned Ragas and one Maseetkhani Gat in any one of the five ragas as mentioned above (with alaaps, toda and jhala). Dhun (notation of Dhun is not required).

3. Padhant (Reciting)-Thekas of the following new taals as also those learnt in Class IX in Dugun and Chaugun, showing Tali, Khali and Matras on hands: Rupak, Jhaptal, Tilwada, Dhamar and Deepchandi (Chanchar).

4. Identification of ragas learnt in Classes IX and X.

SECTION C

HINDUSTANI INSTRUMENTAL MUSIC

(PERCUSSION - TABLA)

THEORY

1. (a) Non-detail terms: Names of 10 Pranas, AadiLaya (Only in Dadra and Keharwa), Lehra (Nagma), Paran, Uthan, Chakkardar Tukda, Dumdar and Bedum Tihai, Gat, Padhant,

   (b) Detailed topics: Origin and development of Tabla, Basic 10 Varnas (Syllables) of Tabla, Taal Jaati System, Solo and Sangat.

2. Brief description of four eminent percussionist (present or recent past).

3. Writing in Taal notation, Thekas, in Thah, Dugun, Tigun and Chaugun, of all Taals learnt in Class IX and X.

4. Names of different parts (components) of the Tabla with the help of a simple sketch. Tuning of the instrument.

5. Identification of Taals (a few bol combinations given) of Class IX and X.

PRACTICAL

1. Technique of producing bols on Tabla like Tirket, Kran, etc.

2. Development of following Taals: Teental – 1 uthan, 2 new kaydas and its 4 paltas with tihai, 1 Rela, 1 Chakardaar Tukda, 1 Damdar and Bedam Tihai, Roopak – 1 Tihai, Sooltaal – 1 Tihai, Teevra Taal – 1 Paran, Deepchandi Taal, Tilwada Taal (only Theka).

3. Padhant (Reciting)- Thekas of all Taals of Class IX and X with development mentioned in para (2), giving Tali, Khali etc. by hands in Dugun and Chaugun.

4. Ability to accompany with vocalist and instrumentalist with development.

PART 2: (To be assessed internally by the School in Class X).

Practical Work in Music (Hindustani) - 100 Marks

Course Work

1. Candidates will be required to practice and perform singing or playing. This performance may be undertaken in connection with the topics suggested below. The practical work of candidates will be assessed by the teacher as course work. The teacher is free to assess the course work either on the basis of continuous assessment or on the basis of periodical tests.

2. Suggested topics for practical work:
   (i) Individual performances, (ii) Practice for school functions, (iii) performance in a group of either players or singers, not necessarily in school, (iv) Prepare a Power Point presentation on an eminent vocalist or instrumentalist. (v) A visit to a sound recording studio.

3. In addition to the course work the candidates will be tested in singing or playing one instrument by an External Examiner.
Assessment

1. The teacher and the External Examiner will assess the practice and performance of candidates.

2. The following aspects of practice and performance should be taken into consideration: (i) Musical performance, Expression, Diction, Tonal quality, Breath control; (ii) Accuracy; (iii) Style and interpretation.

3. The External Examiner may be a teacher nominated by the Head of the school, who could be from the faculty, but not teaching the subject in the section/class. For example, a teacher of Music of Class VIII may be deputed to be an External Examiner for Class X, Music Projects.

The Internal Examiner and the External Examiner will assess the assignments independently.

Award of Marks

Subject Teacher (Internal Examiner) 50 marks
External Examiner 50 marks

The total marks obtained out of 100 are to be sent to the Council by the Head of the school.

The Head of the school will be responsible for the entry of marks on the mark sheets provided by the Council.
## INTERNAL ASSESSMENT IN HINDUSTANI MUSIC - GUIDELINES FOR MARKING WITH GRADES

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Purity of Swar</th>
<th>Laya</th>
<th>Knowledge of raga/taal</th>
<th>Ability to recall practical and theoretical concepts</th>
<th>Overall effect or presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade I</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>each part 8 marks</td>
<td>Posesses an impeccable sense of pitch and note production is similarly perfect.</td>
<td>Has an accurate perception of rhythms, its speed and variations. Can build a solid foundation for musical variation.</td>
<td>Portrays the raga accurately and with appropriate feeling. Moves within the confines of the 'taal' structure.</td>
<td>Performance and presentation reveals a thorough knowledge of raga attributes and of the structure of the taal in general.</td>
<td>Inspired, error free presentation of melody and rhythm. Accurate conception of pitch, correct identification of raga and taal.</td>
</tr>
<tr>
<td>Grade II</td>
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<tr>
<td>each part 6 marks</td>
<td>Has good total value but lacks note perfection or vice versa.</td>
<td>Can maintain an even tempo and is usually accurate in the use of 'layakari' or rhythmic variation.</td>
<td>Expresses great feeling but is less than faithful to the grammar of raga or taal.</td>
<td>Presents well but betrays lack of crucial theoretical inputs like &quot;Nyas&quot; in the improvisation.</td>
<td>Pleasing rendition of melodic and rhythmic forms, a good working knowledge of various degrees of pitch, different ragas etc.</td>
</tr>
<tr>
<td>Grade III</td>
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</tr>
<tr>
<td>each part 4 marks</td>
<td>Has a moderate sense of pitch with a satisfactory ability to project musical notes.</td>
<td>Is somewhat erratic in the maintenance of the taal's speed. However somehow strives to manage the laya.</td>
<td>Can only express the raga in the most limited pathways. Has difficulty knowing his/her position vis-a-vis the taal.</td>
<td>Diligent and keen but shows poor knowledge of concepts like 'alankara' and 'varna'.</td>
<td>Uninspiring, but adequate bookish presentation of course material. Erratic sense of pitch. Shaky knowledge of raga and taal.</td>
</tr>
<tr>
<td>Grade IV</td>
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<tr>
<td>each part 2 marks</td>
<td>A bare semblance of musical quality in both tone and pitch concepts. Sometimes goes off scale.</td>
<td>Is unable to maintain an even 'laya' foundation. Consistently increases or decreases the speed and cannot perform even 'Dugun' in proper time.</td>
<td>The Raga is recognizable only as a vague idea. Is often out of rhythm and has little knowledge of the dynamics of taal.</td>
<td>Moderate presentation not backed by inner reference to VadiSamvadi or Tali, Khali of Raga and Taal.</td>
<td>Barely scraps through the basic required idioms of melody and rhythmic cycle. Poor concept of pitch, taal, and raga.</td>
</tr>
<tr>
<td>Grade V</td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>each part 0 marks</td>
<td>Does not seem to have any concept of pitch. Rendition is off-key.</td>
<td>Has no idea of tune and its relationship to melody. Cannot maintain the rhythm of simple melodies.</td>
<td>Correctly maintains the audiments of either of the two important elements.</td>
<td>Presentation is confused with poorly stated phrases, broken in pitch and rhythms.</td>
<td>Has no semblance to musical effect of any sort. Cannot keep a tune or maintain tempo. No concept of raga or taal.</td>
</tr>
</tbody>
</table>
CARNATIC MUSIC (92)
CLASS IX

There will be one written paper of two hours carrying 100 marks and Practical/Internal Assessment of 100 marks.

1. The fundamental technical terms and their meanings.

2. Principle of Sa, Re, Ga, Ma, notations - significance of symbols commonly used.


4. Lakshanas of the following 16 ragas: Todi; Bhairavi; Kharaharapriya; Kalyani; Sankarabharanam; Shanmukhayriya; Amavardhini; Chakravakam; Kambhoji; Anandabhairavi; Bilahari; Saveri; PoorviKalyani; Hindolam; Mohana; Hamsadhwani.


6. The scheme of 35 talas - Chaputala and its varieties - Desadi and Madhayaditalas - Kriya - Anga - Laya - Gati - Matra (a detailed knowledge of any two) - Shadangas.

7. Musical forms and their classification - An advanced knowledge of the following musical forms: Gita, Tanavarna, Padavarna, Kriti, Ragamalika, Padam, and Javali.
CLASS X

PART 1: There will be one written paper of two hours - 100 marks

Candidates will be required to attempt five questions from a choice of eight questions.


2. Classification of musical instruments into string, wind and percussion group. A general knowledge of Vina, Violin, Gottuvadyam, Tambura, Flute and Mridangam - Training of human voice and compass of the concert instruments in South India.


PART 2: (To be assessed internally by the School in Class X).

Practical Work in Music (Carnatic) -- 100 Marks

Course Work

1. Candidates will be required to practise and perform singing or playing one or more musical instruments such as Tabla, Violin, etc. This practical and performance may be undertaken in connection with the topics suggested below. The practical work of candidates will be assessed by the teacher as course work. The teacher is free to assess the course work either on the basis of continuous assessment or on the basis of periodical tests.

2. Suggested topics for practical work: (i) Individual performances, (ii) Practice for school functions. (iii) Performance in a group of either players or singers, not necessarily in school, (iv) Making a musical instrument.

3. In addition to the course work the candidates will be tested in singing or playing one instrument by an External Examiner. Where a candidate has chosen to make a musical instrument, the instrument may be put up for inspection by the External Examiner. Where a candidate has personally taken part in performance, tape recorded evidence may be submitted for the assessment by the External Examiner.

Assessment

1. The teacher and the External Examiner will assess the practice and performance of candidates.

2. The following aspect of practice and performance should be taken into consideration: (i) Musical performance, Expression, Diction, Tonal quality, Breath control; (ii) Accuracy; (iii) Style and interpretation.

3. The External Examiner may be a teacher nominated by the Head of the school, who could be from the faculty, but not teaching the subject in the section/class. For example, a teacher of Music of Class VIII may be deputed to be an External Examiner for Class X, Music Projects.

The Internal Examiner and the External Examiner will assess the assignments independently.

Award of Marks

Subject Teacher (Internal Examiner) 50 marks
External Examiner 50 marks

The total marks obtained out of 100 are to be sent to the Council by the Head of the school.

The Head of the school will be responsible for the entry of marks on the mark sheets provided by the Council.
## INTERNAL ASSESSMENT IN CARNATIC MUSIC GUIDELINES FOR MARKING WITH GRADES

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Purity of Swar</th>
<th>Laya</th>
<th>Knowledge of raga/tala</th>
<th>Ability to recall practical and theoretical concepts</th>
<th>Overall effect or presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade I</td>
<td>Possesses an impeccable sense of pitch and note production is similarly perfect.</td>
<td>Has an accurate perception of rhythms, its speed and variations. Can build a solid foundation for musical variation.</td>
<td>Portrays the raga accurately and with appropriate feeling. Moves within the confines of the 'tal' structure.</td>
<td>Performance and presentation reveals a thorough knowledge of raga attributes and of the structure of the tala in general.</td>
<td>Inspired, error free presentation of melody and rhythm. Accurate conception of pitch, correct identification of raga and tala.</td>
</tr>
<tr>
<td>Grade II</td>
<td>Has good total value but lacks note perfection or vice versa.</td>
<td>Can maintain an even tempo and is usually accurate in the use of 'layakari' or rhythmic variation.</td>
<td>Expresses great feeling but is less than faithful to the grammar of raga or tala.</td>
<td>Presents well but betrays lack of crucial theoretical inputs like &quot;Nyas&quot; in the improvisation.</td>
<td>Pleasing rendition of melodic and rhythmic forms, a good working knowledge of various degrees of pitch, different ragas etc.</td>
</tr>
<tr>
<td>Grade III</td>
<td>Has a moderate sense of pitch with a satisfactory ability to project musical notes.</td>
<td>Is somewhat erratic in the maintenance of the taal's speed. However somehow strives to manage the laya.</td>
<td>Can only express the raga in the most limited pathways. Has difficulty knowing his/her position vis-a-vis the tal.</td>
<td>Diligent and keen but shows poor knowledge of concepts like 'alankara' and 'varna'.</td>
<td>Uninspiring, but adequate bookish presentation of course material. Erratic sense of pitch. Shaky knowledge of raga and tala.</td>
</tr>
<tr>
<td>Grade IV</td>
<td>A bare semblance of musical quality in both tone and pitch concepts. Sometimes goes off scale.</td>
<td>Is unable to maintain an even 'laya' foundation. Consistently increases or decreases the speed and cannot perform even 'Dugun' in proper time.</td>
<td>The Raga is recognizable only as a vague idea. Is often out of rhythm and has little knowledge of the dynamics of tala.</td>
<td>Moderate presentation not backed by inner reference to VadiSamvadi or Tali, Khali of Raga and Tala.</td>
<td>Barely scraps through the basic required idioms of melody and rhythmic cycle. Poor concept of pitch, tala, and raga.</td>
</tr>
<tr>
<td>Grade V</td>
<td>Does not seem to have any concept of pitch. Rendition is off-key.</td>
<td>Has no idea of tune and its relationship to melody. Cannot maintain the rhythm of simple melodies.</td>
<td>Correctly maintains the audiments of either of the two important elements.</td>
<td>Presentation is a hotchpotch of poorly stated phrases, broken in pitch and rhythms.</td>
<td>Has no semblance to musical effect of any sort. Cannot keep a tune or maintain tempo. No concept of raga or tala.</td>
</tr>
</tbody>
</table>
There will be one paper of two hours carrying 100 marks and Internal Assessment of 100 marks.

PART 1: THEORY – (100 Marks)

The syllabus is divided into two Sections: Section A - Musical Instruments, Section B - Forms and Analysis of Music.

Candidates will be required to attempt nine questions in all, five questions from Section A all of which are compulsory and any four questions from Section B.

SECTION A: MUSICAL INSTRUMENTS

1. Musical Instruments: Sound production and playing techniques of the following families of instruments:

   (a) Keyboard family:
       Harpsichord, clavichord and acoustic pianoforte.

   (b) Pipe Organ

   (c) The String family:
       Violin, Viola, Violoncello, Double Bass.

   (d) The Guitar family:
       Classical, Spanish, Hawaiian guitars.

   (e) Woodwind family:
       Flute, Piccolo, Oboe, Clarinet, Cor Anglais, Bassoon, Saxophone.

   (f) Brass Family:
       Trumpet, French Horn, Trombone, Tuba.

   (g) Percussion family
       Timpani (Kettle Drums), Bass Drum, Snare Drum, Tambourine, Tubular Bells, Xylophone, Glockenspiel.

Note:
- Candidates are expected to know the tuning notes and clefs of the following: The String family and The Guitar family. They will be expected to be able to write these on staff notation, beginning with the lowest in pitch. They are expected to know the range of any one woodwind and any one brass instrument of their choice.
- Any TWO Similarities and TWO differences between members of the same family, for example e.g.: oboe & clarinet; flute & piccolo, trombone & tuba, etc.

SECTION B: FORMS AND ANALYSIS OF MUSIC

2. Forms of Music

   (a) Symphony
       Definition, structure (form), Sonata Form; Analysis of any one symphony of the candidate’s choice. (*format for analysis for symphony given at the end of the syllabus.)

   (b) Concerto
       Definition, structure (form); Analysis of any one Concerto (of the Classical or Romantic period) of the candidate’s choice. (*format for analysis for Concerto given at the end of the syllabus.)

   (c) Jazz
       Origin, characteristics, instrumentation, Genres of Jazz: New Orleans, Swing, Bebop.

   (d) Popular Music
       Life, works, style and reasons for popular appeal of any solo artiste (vocal or instrumental) and / or band of the candidate’s choice. Genres of music may include but are not limited to:

3. Life and Works


   (b) Life, works and style of the following exponents of Jazz; Louis Armstrong, Duke Ellington, George Gershwin, Miles Davis.

Note: Candidates are expected to write an essay of approximately 500 words on the life, works and contribution of the composer/s and/or exponents mentioned above.
4. Technology in Music

(a) Electronic Music
   Definition and scope of Electronic Music: description of the Theremin and the Moog Synthesizer.

(b) Basic knowledge of the following genres:

(c) DAW (Digital Audio Workstation)
   (i) Definition, basic features and applications of any one Home Studio DAW of the candidate’s choice.
   (ii) Definition and usage in a DAW of the following: audio samples, loops, live audio, plug-ins and Timeline.
   (iii) Applications of DAWs in Electronic Music, DJ music and new directions in music.

5. Personal Experience

Candidates should be able to write an essay (approximately 500 words) about their personal experiences as a musician in any one of the following areas:

(a) As a solo singer or instrumentalist.
(b) Member of the school choir or orchestra.
(c) Part of a school Musical Theatre or any other production.

Note: The topics should be interpreted as widely as possible. Candidates should listen to a variety of music within the category title. In answering questions, which require paragraph answers, candidates should refer knowledgeably and by name, to the works to which they have listened. Questions will be framed so as to give all candidates a chance to show the following: (i) that they have heard works in a given category; (ii) that they know the characteristics of a particular category or kind of music; (iii) that they are aware of the context of a particular category or kind of music; (iv) that they know the names of prominent composers and their contribution to a particular category or kind of music.

PART 2: PRACTICAL WORK IN MUSIC (WESTERN)
- 100 marks

Candidates for the examination in Music (Western) will be required to have passed the Practical Examination of the Associated Board of Royal School of Music, Grade 4, or a more advanced grade or Grade 4 or a more advanced Grade of Trinity College, London (or an equivalent examination approved by the Council).

Course Work

The Practical work of candidates in Western Music in preparation for the practical examination of:

- The Associated Board of Royal School of Music: Grade 4, or a more advanced grade, or
- Trinity College, London: Grade 4 or a more advanced grade,
(or an equivalent examination approved by the Council), will be taken as the requirement for course work in Western Music.

Final Test

The practical examination of the Associated Board of Royal School of Music, Grade 4, or a more advanced grade, or Grade 4 or a more advanced Grade of Trinity College, London (or equivalent examination approved by the Council), will be taken in fulfillment of the final test for practical work in Western Music.

Assessment

The result of the practical examination issued by the Associated Board of Royal School of Music, Grade 4, or a more advanced grade, or Grade 4 or a more advanced Grade of Trinity College, London (or equivalent examination approved by the Council) will be taken as the assessment of Part 2 of Western Music.

(*)TEMPLATE FOR ANALYSIS OF SYMPHONY

- Name of the Symphony
- Key
- Composer
- Instruments used

First movement: key, time signature, tempo direction
Exposition: both themes, closing theme/coda. Brief description of motifs, important modulations and melody/harmony/rhythm.
Development: modulations and treatment of themes
Recapitulation: Keys used, second subject remains in tonic key, bridging passage, closing theme.

**Second movement:** key, time signature, tempo direction
Instrumentation used
Themes, motifs, all important points of harmony, melody and orchestration

**Third & Fourth movements** (the symphony may have less than three or more than four movements) as given in the above movements. All symphonic forms such as Sonata Form, Theme and Variations, Minuet and Trio, Scherzo, Sonata-Rondo, where applicable, must be described clearly.

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**Suggested Reading:**
- The Encyclopedia of Music: Max Wade-Mathews & Wendy Thompson
- The Enjoyment of Music: published by W.W. Norton & Co.
- The History of Music; From the Cambridge assignments in Music: Roy Bennett

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(*)**TEMPLATE FOR ANALYSIS OF CONCERTO**

- Definition, origin
- Name of the Concerto
- Key
- Composer
- Instruments and solo instruments used

**First movement:** key, time signature, tempo direction
Description of melodic and harmonic progression, key modulations, role of solo instrument, cadenza (if used), and Sonata Form (if used). *Note: the cadenza format should be defined.*

**Second Movement:** key, time signature, tempo direction
Description of melodic and harmonic progression, key modulations, role of solo instrument.

**Third Movement:** key, time signature, tempo direction
Description of melodic and harmonic progression, key modulations, role of solo instrument, cadenza (if used), and Sonata Form (if used).
INDIAN DANCE (94)

CLASSES IX AND X

There will be one paper of two hours carrying 100 marks and Internal Assessment of 100 marks.

Candidates will be required to select one dance style from the following: Bharatanatyam, Kathak, Odissi, Kuchipudi, Manipuri, and Kathakali. The course work and assessment for the Internal Assessment shall focus solely on the dance style selected by the candidate. An overview of classical dance in India may be required, along with simple comparative studies between the different dance styles, for the written Theory paper.

PART 1: Theory – (100 Marks)
Candidates will be required to attempt five questions out of eight questions.

1. Identification of different classical dance styles in India. The aesthetic appeal of each, highlighting the distinctiveness of the individual styles, namely Bharatanatyam, Kathak, Odissi, Kuchipudi, Manipuri and Kathakali.

2. The mythological evolution of dance and an elementary understanding of important texts like the Natya Shastra, and story lines associated with classical dance in India. Also, an appreciation of the myths surrounding the lives of Ganesh, Krishna, Shiva, Vishnu, etc.

3. The sociological development of dance – its history, roots, growth and revival.

4. An understanding of the guru-shishyaparampara (including the tradition and lineage associated with the chosen dance form only).

5. Prominent exponents of the various different classical dance styles listed above.

6. An understanding of the dance repertoire and musical accompaniment (for the chosen dance style only).

7. The relevance of dance in today’s world and the modern developments in dance.

PART 2: To be assessed internally by the School.

Practical Work in Indian Dance - 100 Marks

Course Work

The practical section is divided into two parts:

1) Nritya

2) Abhinaya

1. Nritya

(i) The basic body stances and positions, the neck and eye movements of the chosen dance style.

(ii) A minimum of 15 steps in Nritya to be executed in the 3 speeds of slow, medium and fast.

(iii) An understanding of the different rhythms (Tal) and the ability to perform a particular Tal in a passage of dance.

(iv) Recitation of the Bols (syllables) and the ability to present the spoken syllables in dance.

(v) Individual presentation of a short Nritya item.

2. Abhinaya

(i) Knowledge of the Asamyuta (single hand gestures) and Samyuta (double hand gestures) used in Abhinaya.

(ii) The Deva Hastas (Brahma, Vishnu, Shiva, Krishna, Ganesh, etc.) with their attributes.

(iii) The DasavatarHastas (gestures depicting the 10 avatars of Vishnu).
(iv) A basic knowledge of the Nava Rasas (nine emotions) used in dance, namely:

(a) Shringar – love
(b) Hasya – mirth
(c) Karuna – compassion
(d) Rondra – anger
(e) Veera – strength
(f) Bhayanaka – fear
(g) Bhibatsa – disgust
(h) Adbuta – wonder
(i) Shantam – peace

(v) Individual presentation of a short item of Abhinaya.

Assessment

1. The teacher and the External Examiner will assess the practice and performance of candidates.

2. The External Examiner may be a teacher nominated by the Head of the school, who could be from the faculty, but not teaching the subject in the section/class. For example, a teacher of Indian Dance of Class VIII may be deputed to be an External Examiner for Class X, Indian Dance Projects.

The Internal Examiner and the External Examiner will assess the assignments independently.

Award of Marks

Subject Teacher (Internal Examiner) 50 marks
External Examiner 50 marks

The total marks obtained out of 100 are to be sent to the Council by the Head of the school.

The Head of the school will be responsible for the entry of marks on the mark sheets provided by the Council.
### INTERNAL ASSESSMENT IN DANCE - GUIDELINES FOR MARKING WITH GRADES

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Regularity &amp; Punctuality</th>
<th>Movements</th>
<th>Facial Expressions</th>
<th>Make -Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade I</td>
<td>Participates regularly and is punctual.</td>
<td>Highly appropriate, highly graceful and highly natural.</td>
<td>Highly appropriate, highly graceful and highly natural.</td>
<td>Highly appropriate, highly eye-catching and highly natural.</td>
</tr>
<tr>
<td>Grade II</td>
<td>Participates regularly but is not punctual.</td>
<td>Mostly appropriate, mostly graceful and mostly natural.</td>
<td>Mostly graceful, mostly appropriate, mostly natural.</td>
<td>Mostly appropriate, mostly eye-catching and mostly natural.</td>
</tr>
<tr>
<td>Grade III</td>
<td>Participates very often but is neither regular nor punctual.</td>
<td>Partially appropriate, somewhat graceful and natural.</td>
<td>Partially and somewhat natural.</td>
<td>Partially appropriate, somewhat eye-catching and somewhat natural.</td>
</tr>
<tr>
<td>Grade IV</td>
<td>Rarely participates.</td>
<td>Rarely appropriate and rarely graceful.</td>
<td>Rarely appropriate and rarely natural.</td>
<td>Mostly inappropriate, does not catch the eye and mostly unnatural.</td>
</tr>
<tr>
<td>Grade V</td>
<td>Never participates.</td>
<td>Inappropriate, artificial and lacks grace.</td>
<td>Inappropriate and unnatural.</td>
<td>Inappropriate, not at all eye-catching and unnatural.</td>
</tr>
</tbody>
</table>
DRAMA (95)
CLASSES IX AND X

There will be one paper of two hours carrying 100 marks and Internal Assessment of 100 marks.

PART 1: THEORY – (100 Marks)
The syllabus is divided into two Sections: Section A – Drama as Art, Section B – Technical aspects of drama.

Candidates will be required to attempt five questions in all, three questions from Section A and two questions from Section B.

SECTION A

Six questions shall be set in this Section. Candidates will be required to evaluate and analyse material as part of a drama process. Resource material would be provided in each question in the form of extracted pieces from plays, themes, situations or printed visual sequences. The resource materials are expected to form stimuli that would be used by candidates to answer the question. Answers can be in the form of a written commentary and may be accompanied by sketches, diagrams and notes as required. Candidates would be permitted to creatively add dialogue to the stimuli provided for each question.

Candidates will be expected to have an appreciation of the following elements:

1. Use of people, space and conflict in drama.
2. The function of the director.
3. The actor – basic technique (Stage positions; Body positions used by actors - in relation to the audience and to other actors; Turns and gestures; Movement and approaches; Entering and exiting; Handling of properties), body, voice and role.
4. The stage – its various parts and different types of staging (proscenium arch theatre, central staging, street theatre, folk theatre, puppetry).
5. Composition, picturisation, movement, rhythm, dramatisation.
6. Literature: no specific texts are prescribed, but candidates need to have studied some extracted pieces as examples, which may include Pygmalion, Galileo, A Doll’s House, Antigone and improvise.

SECTION B

Four questions shall be set in this Section. Candidates will be expected to have working knowledge of the technical skills used by directors, actors, and designers (sets, costumes, make-up, lighting and sound). Questions will be set using resource material as a basis for technical design – candidates will be permitted to use sketches, notes and diagrams as part of their answers.

Candidates will be expected to have an appreciation of the following elements:

1. Use of the stage and emphasis through set design, positions, compositions and movement; Blocking and its relation to the composition.
2. The production process; Rehearsals.
3. Equipment - from auditorium to backstage; Sets (including parts of stage equipment used in a set); Properties.
4. Lighting and sound – equipment and design.
5. Costumes and make-up (including design).
6. Stage management.
7. Different types of staging (as given in Section A) and their effect on technical aspects of a production.

PART 2: To be assessed internally by the School.

Practical Work in Drama - 100 Marks

Course Work

The practical section is divided into two parts - Acting and Stagecraft – both of which must be studied by candidates.

1. Acting: Candidates will be required to practise and perform as actors. This practical and performance may be undertaken either as acting an original piece, or acting a piece/extract from a play. The practical work of candidates will be assessed by the teacher as course work.
The teacher is free to assess the course work either on the basis of continuous assessment or on the basis of periodical tests. Where a candidate has personally taken part in performance, video recorded evidence and reviews may be submitted for the assessment by the External Examiner.

2. **Stagecraft:** In addition to the course work on Acting, the candidates will be tested in one element of stagecraft by the teacher and by an External Examiner. Candidates will be required to choose one area from (i) Costumes, (ii) Make-up, (iii) Stage design including sets, (iv) Lighting, (v) Sound. Candidates should present designs prepared based on a play that has been developed as coursework during the year. Photographs, designs and video tapes may be submitted for the assessment by the External Examiner where the candidate has prepared a design for a performance.

**Assessment**

1. The teacher and the External Examiner will assess the practice and performance of candidates.

2. The External Examiner may be a teacher nominated by the Head of the school, who could be from the faculty, **but not teaching the subject in the section/class.** For example, a teacher of Drama of Class VIII may be deputed to be an External Examiner for Class X Drama Projects.

The Internal Examiner and the External Examiner will assess the assignments independently.

**Award of Marks**

Subject Teacher (Internal Examiner) 50 marks
External Examiner 50 marks

The total marks obtained out of 100 are to be sent to the Council by the Principal of the school.

The Head of the school will be responsible for the entry of marks on the mark sheets provided by the Council.
## INTERNAL ASSESSMENT IN DRAMATICS - GUIDELINES FOR MARKING WITH GRADES

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Regularity &amp; Punctuality</th>
<th>Make - Up</th>
<th>Acting</th>
<th>Dialogue</th>
<th>Emotional Appeal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade I</td>
<td>Participates regularly and is punctual.</td>
<td>Highly appropriate, highly eye-catching and highly natural.</td>
<td>Highly graceful, highly eye-catching, highly natural.</td>
<td>Highly correct, very distinct, highly effective.</td>
<td>Highly adequate intensity, highly appropriate to the occasion.</td>
</tr>
<tr>
<td>Grade II</td>
<td>Participates regularly but is not punctual.</td>
<td>Mostly appropriate, mostly eye-catching and mostly natural.</td>
<td>Mostly graceful, mostly appropriate, mostly natural.</td>
<td>Mostly correct, mostly distinct, mostly effective.</td>
<td>Mostly adequate intensity, mostly appropriate to the occasion and role.</td>
</tr>
<tr>
<td>Grade III</td>
<td>Participates very often but is neither regular nor punctual.</td>
<td>Appropriate, eye catching, somewhat natural.</td>
<td>Partially graceful, mostly appropriate, mostly natural.</td>
<td>Partially correct, partially distinct, partially effective.</td>
<td>Partially adequate intensity and rarely appropriate to the occasion and role.</td>
</tr>
<tr>
<td>Grade IV</td>
<td>Rarely participates.</td>
<td>Partially appropriate and partially eye-catching.</td>
<td>Needs frequent guidance.</td>
<td>Rarely appropriate, rarely distinct, rarely effective.</td>
<td>Rarely adequate intensity and rarely appropriate to the occasion and role.</td>
</tr>
<tr>
<td>Grade V</td>
<td>Never participates.</td>
<td>Inappropriate, not eye-catching and unnatural.</td>
<td>Inappropriate and unnatural.</td>
<td>Inappropriate, distinct, and ineffective.</td>
<td>Inadequate intensity and inappropriate to the occasion and role.</td>
</tr>
</tbody>
</table>
PHYSICAL EDUCATION (72)

Aims:

1. To create an awareness of the necessity for vigour and efficiency through physical fitness.
2. To develop knowledge and understanding of the requirements for healthy living, nutrition, exercise and relaxation.
3. To create awareness of the necessity to develop good posture and physical poise.
4. To develop knowledge and understanding of skills relating to leisure time activities and of a recreational nature.
5. To create opportunities to develop 'esprit de corps', courtesy, sportsmanship, social skills, democratic conduct and ideals.
6. To develop appreciation of the aesthetic and cultural aspects of movement.

CLASS IX

There will be one written paper of two hours duration carrying 100 marks and Internal Assessment of 100 marks.

PART 1: THEORY - 100 marks

1. The Body and how it works
   (a) Basic organisation - Cells, tissues, organs, organ systems (cell details only as far as can be seen through a school microscope).
   (b) Movement and support - Function of skeleton, structure related to function of bodies (including bone-marrow), cartilage, ligaments, tendons, muscle types (cardiac smooth and skeletal) and their properties, joints, part played by nerves and blood in maintaining muscular action (voluntary and involuntary).
   (c) Respiration - Structure and function of the respiratory system. Mechanism of breathing, including artificial maintenance. Tissue respiration -- energy release, ADP/ATP, aerobic, and anaerobic, lactic acid and oxygen debt.
   (d) Circulation - Main features of heart and its circulatory system, arteries, veins, capillaries, lymphatics (only names required of the blood vessels of the liver and kidneys and those entering and leaving the heart). Composition and functions of blood. Blood groups A, B, AB, O and Rh factor. Outline only in the change and composition of blood as it passes through the wall of the small intestine, liver, lungs, muscles, kidneys and skin.
   (f) Excretion - The excretion of waste material by the lungs, the skin. Control of heat loss: area/volume ratio. Hair and nails as outgrowths of skin. The general structure of the urinary system. The liver as an excretory organ.
   (g) Sensitivity and co-ordination - Outline of nervous system - brain, spinal cord, sense organs. The sense of sight, hearing, smell, taste, touch and balance. Detailed structure of the eye and ear and simple experiments of taste and touch. The reflex arc, conditional reflex.

PART 2: INTERNAL ASSESSMENT - 100 marks

Please note the guidelines for internal assessment as given for Class X.
CLASS X

There will be one written paper of **two** hours duration carrying 100 marks and Internal Assessment of 100 marks.

The written paper will be divided into **two** Sections, A and B.

**Section A:** will consist of compulsory short answer questions on Section A of the syllabus.

**Section B:** Candidates will be required to answer questions on the rules, skills required and the methods of training of any **two** of the given team games.

**PART 1: THEORY - 100 marks**

**SECTION A**

1. **Health and Hygiene**
   

   (b) Diseases, defects and injury - Causes of disease, bacteria, viruses, fungi, protozoa. Vaccination and antibiotics, disinfectants and antiseptics. Spread of bronchitis, pneumonia, TB, VD, malaria, ringworm, athlete’s foot through contact, droplet infection, flies and other insects. Arthritis, rheumatism and heart disease.

   (c) Community health - Dangers from gas, electricity, fire, poisoning and accident.

2. **First Aid**
   
   (a) Treatment of cuts and abrasions. Application of splints.

   (b) Treatment of sprains, cramps and cases of drowning.

**SECTION B**

Candidates will be required to answer questions on the rules, skills and methods of fitness training of any **two** of the following team games.

Cricket, football, handball, hockey, basketball, volleyball, softball.

**PART 2: INTERNAL ASSESSMENT (100 marks)**

Practical work will be assessed in two parts as follows:

(i) Assessment by the Teacher(s).

(ii) Assessment by an External Examiner.

1. **Work to be assessed by Teacher(s) - 50 marks.**

   The skill and performance of the candidates will be assessed by the teacher(s), responsible for preparing the candidates for the examination, in two of the following games and activities of their choice:

   Athletics, cricket, hockey, football, handball, volleyball, softball, basketball, tennis, badminton, swimming, dancing, gymnastics, yoga, boxing, wrestling, judo and karate, table tennis, kho-kho and kabaddi.

2. **Work to be assessed by the External Examiner - 50 marks.**

   The assessment of the work of the candidates by the External Examiner will be in two parts:

   (i) Physical efficiency tests.

   (ii) Specialisation tests.
(i) **Physical Efficiency Tests**

The following tests to evaluate the physical fitness of candidates will be organised and conducted in the presence of the External Examiner. Tests 1 to 3 should be carried out on one day and 4 to 6 on the next.

(a) **Test 1**

50 metre run. Standing start. Timings to be taken to the nearest tenth of a second (weather should be relatively windless without extremes of temperature).

(b) **Test 2**

Standing long jump. A flat non-slip surface should be used. The candidates should stand with toes just behind the take-off line and jump when ready. After making a preliminary swing with the arms, the candidate swings them forward vigorously, springing with both feet simultaneously to land as far forward as possible. Distance jumped, to be measured in centimetres.

(c) **Test 3**

Distance run - 1000 meters run for boys, 600 meters run for girls. Time to be taken to the nearest second.

(d) **Test 4**

(i) Floor push-ups for boys -- The boys take a front-leaning position with body supported on hands and balls of feet; the arms are straight and at right angle to the body. He then dips or lowers the body so that the chest touches or nearly touches the floor, he then pushes back to the starting position by straightening the arms and repeats the procedures as many times as possible. Only the chest should touch the floor; the arms must be completely extended with each push-up; the body must be held straight throughout. Scoring consists of the number of correct push-ups.

(ii) Push-ups for girls -- This is executed from a stall bar bench or a stool 32cm high by 50 cm long and 35 cm wide. It should be placed on the floor about 15 cm from a wall so that the subjects will not take a position too far forward. The girl should grasp the outer edges of the bench, or stool, at the nearest corners and assume the front-leaning rest position, with the balls of her feet on the floor and with her body and arms forming a right angle. She should then lower her body so that the upper chest touches the near edge of the bench or stool, then raise it to a straight arm position as many times as possible. The girl's body should be held straight throughout. If the body sways or arches, or if the subject does not go completely down or does not push completely up, half credit is given up to 4 half credits.

(e) **Test 5**

Shuttle run. A flat course of 10 meters is required to be measured between two parallel base lines. Behind each base line, as a semicircle 50 cm radius with centre on the base line is required to be marked. Two wooden blocks (5x5x5 cm) are to be placed in the far semicircle. The candidate stands with feet behind the base line, and on a signal, runs to the far line, picks up one block which the candidate places in the starting semicircle when he/she returns. The candidate then repeats the procedure with the second block. The time to the nearest tenth of a second is to be taken till the second block is grounded in the starting semicircle.

(f) **Test 6**

30 - second sit-ups. The candidate lies with his/her back on a mat or flat surface, feet about 30 cm apart and knees flexed at right angles. The candidate's hands with fingers interlocked are placed behind the head. A partner holds the candidate's feet in contact with the mat or floor. On the signal "Go" the candidate sits up to touch the knees with his/her elbows. Without pause he/she returns to his/her starting position and immediately sits up again. The number of sit-ups completed in 30 seconds are to be counted.

(ii) **Specialisation Tests**

Candidates will be tested in the presence of an External Examiner, in **one** of the following activities listed below:

(a) Athletics  (b) Gymnastics  (c) Swimming  (d) Dancing  (e) Yoga.

(a) **Athletics** - The candidates will choose any two of the following events in which they wish to be tested:

(i) **Track events**

Boys - 100 m, 200m, 400m, 800m and 1500m.
(ii) **Fields events**

Boys - long jump, high jump, hop-step-and-jump, pole vault, shot puts, discus and javelin throw.

Girls - long jump, high jump, shot put (8 lbs.) and throwing the softball.

(b) **Gymnastics** - The candidates will be tested in four exercises using any two of the following apparatus of their choice:

(i) **Ground/mat work**

Boys - Front roll, back roll, cartwheel, headspring, handstand, and somersault.

Girls - Ballet, flexibility and agility movements -- the front split, the pirouette, the toe stand, the ballet touch, the body sweep, the arabesque, the single-leg balance, the balance; front roll, back roll, cartwheel.

(ii) **The balance beam** - (girls only)

Mounts - The straight arm support mount, the squat mount, the one knee mount, and the crotch seat mount. Poses and Movements, walking the beam, the pivot, the pirouette turn, jumping on the beam. Dismounts -- the side-seat dismount, the front vault dismount.

(iii) **Parallel bars**

Boys - The straight arm support, the straddle seat, the back roll to a straddle-seat, the shoulder balance, the single-leg flank dismount, the double-leg flank dismount.

Girls - The straight arm support, swinging, the straddle seat, the forward roll.

(iv) **Vaulting Horse**

Boys - The side vault, the through vault, the straddle vault, the head spring vault. High horse - the side vault, the through vault, the straddle vault. Long horse -- the through vault, the straddle vault.

Girls - The side vault, the squat stand dismount, the straddle vault, the straddle stand, the head spring vault.

(v) **Horizontal bar** - (boys only)

Upward swing and dismount, swinging to mount and dismount, swinging and changing hands to face opposite direction.

(c) **Swimming** - The candidates will be tested in any two of the following of their choice.

*Boys* - Freestyle - 50m, 100m, 200m and 400m; Breast stroke - 50m, 100m; Backstroke - 50m, 100m; Butterfly stroke - 50m, 100m; Diving - standing one-leg dive, standing semi-crouch dive, standing stationary dive, the front jump dive from the springboard.

*Girls* - Freestyle - 50m, 100m and 200m; Breast stroke - 50m, 75m; Backstroke - 50m, 75m; Butterfly stroke - 50m, 75m; Diving - standing one-leg dive, standing semi-crouch dive, standing stationary dive, the front jump dive from the springboard.

(d) **Dancing** - The candidates will be required to give a performance of any *two* of the following dances/movements, of their choice, with suitable accompaniments:

(i) Combination of dance movements and ground-mat work.

(ii) Indian dancing -- Bharatanatyam, Kuchipudi, Kathakali, Kathak, Manipuri, Bhangra, any other folk dance.

(iii) Western dancing -- ballet; ballroom dancing - waltz, foxtrot, tango, samba, Charleston, square dancing; pop-dancing - jitterbug, twist, rock and roll.

(e) **Yoga** - The candidates will be tested in any *four* of the following asanas.

 Ugrasam, dhamrekhasan, singhasan, ultanmandhukasan, kukutasans, naunli, kapala, bhathi, shavasana, shirashasan, shalabhasan, bakasan and mayurasan.
METHOD OF ASSESSMENT BY TEACHERS

The teacher(s) will assess the candidates, skill and performance in the two games and activities of their choice. They will mark the candidates out of 50 marks as follows:

<table>
<thead>
<tr>
<th>Marks</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Achievement of skills and performance</td>
</tr>
<tr>
<td>(b)</td>
<td>Attendance</td>
</tr>
<tr>
<td>(c)</td>
<td>Participation in voluntary and intramural activities</td>
</tr>
<tr>
<td>(d)</td>
<td>Representation of the School at different levels - Inter-School, District, State</td>
</tr>
</tbody>
</table>

Achievement of skills and performances

In assessing the achievement of skills and performances, the following factors should be considered:

(a) **Team games** (See para 2, Section B)  

<table>
<thead>
<tr>
<th>Marks</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(i)</td>
<td>Ability in fundamental skills</td>
</tr>
<tr>
<td>(ii)</td>
<td>Ability in a particular skill</td>
</tr>
<tr>
<td>(iii)</td>
<td>Utilisation of fundamental skills during a game</td>
</tr>
<tr>
<td>(iv)</td>
<td>Offensive and defensive skills</td>
</tr>
</tbody>
</table>

(b) **Athletics**

The actual performance of the candidates should be tested in the events chosen by him/her and assessed according to the five-point grading system given below:

<table>
<thead>
<tr>
<th>Marks</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A – Excellent</td>
<td>26-30</td>
</tr>
<tr>
<td>B - Very Good</td>
<td>21-25</td>
</tr>
<tr>
<td>C – Good</td>
<td>16-20</td>
</tr>
<tr>
<td>D – Average</td>
<td>11-15</td>
</tr>
<tr>
<td>E - Below Average</td>
<td>10 &amp; less</td>
</tr>
</tbody>
</table>

(c) **Swimming**  

<table>
<thead>
<tr>
<th>Marks</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(i)</td>
<td>Ability in basic skills, e.g. breathing, floating, arm movements, combined elementary movement, changing body positions and directions and treading water</td>
</tr>
<tr>
<td>(ii)</td>
<td>Ability in stroke skills</td>
</tr>
<tr>
<td>(iii)</td>
<td>Ability in diving skills</td>
</tr>
<tr>
<td>(iv)</td>
<td>Speed and endurance</td>
</tr>
</tbody>
</table>

(d) **Dancing**  

<table>
<thead>
<tr>
<th>Marks</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(i)</td>
<td>Ability to keep rhythm</td>
</tr>
<tr>
<td>(ii)</td>
<td>Expression and grace of movements</td>
</tr>
<tr>
<td>(iii)</td>
<td>Ease of performance</td>
</tr>
<tr>
<td>(iv)</td>
<td>Endurance</td>
</tr>
</tbody>
</table>

(e) **Gymnastics**  

<table>
<thead>
<tr>
<th>Marks</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(i)</td>
<td>Willingness to perform</td>
</tr>
<tr>
<td>(ii)</td>
<td>Knowledge of sequence &amp; performance of exercise</td>
</tr>
<tr>
<td>(iii)</td>
<td>Form, grace and ease of performance</td>
</tr>
<tr>
<td>(iv)</td>
<td>Landing or recovery technique</td>
</tr>
</tbody>
</table>

(f) **Boxing, Wrestling, Judo and Karate**  

<table>
<thead>
<tr>
<th>Marks</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(i)</td>
<td>Courage, confidence, self-reliance &amp; endurance</td>
</tr>
<tr>
<td>(ii)</td>
<td>Foot work/holds</td>
</tr>
<tr>
<td>(iii)</td>
<td>Offensive techniques</td>
</tr>
<tr>
<td>(iv)</td>
<td>Defensive techniques</td>
</tr>
</tbody>
</table>

(g) **Yoga**  

<table>
<thead>
<tr>
<th>Marks</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(i)</td>
<td>Ability to assume the posture/activity</td>
</tr>
<tr>
<td>(ii)</td>
<td>Knowledge of sequence for final pose/activity</td>
</tr>
<tr>
<td>(iii)</td>
<td>Perfection in posture/activity with grace &amp; poise</td>
</tr>
<tr>
<td>(iv)</td>
<td>Performing a post activity with ease &amp; maintaining it for a length of time with relaxation</td>
</tr>
</tbody>
</table>
METHOD OF ASSESSMENT BY THE EXTERNAL EXAMINER

Physical Efficiency Tests
The External Examiner will assess the performance of the candidates in the physical efficiency test in accordance with the Performance Table at Appendix A attached. He/She will mark the candidates out of 30 marks based on his assessment.

Specialisation Tests
The External Examiner will assess the performance of the candidates in the activity that they have chosen for specialisation (See (ii) Specialisation Tests) out of 20 marks. The basis of his/her assessment for each activity is given in the ensuing paragraphs.

(a) Athletics
The candidates will be assessed in their performance in any two of the events of their choice as given in the syllabus, in accordance with the table attached as Appendix B.

(b) Gymnastics
The candidates will be assessed in their performance in four exercises, to be nominated by the External Examiner, using any two apparatus of the candidates’ choice. The External Examiner will give marks for each exercise as follows:

<table>
<thead>
<tr>
<th>Marks</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Perfect performance in form, grace and timing</td>
<td>05</td>
</tr>
<tr>
<td>(ii) Satisfactory performance but for minor fault in form &amp; timing</td>
<td>04</td>
</tr>
<tr>
<td>(iii) Performance with poor form e.g. bent knees, toes not pointed</td>
<td>03</td>
</tr>
</tbody>
</table>

(c) Swimming
The candidates will be assessed in any two of the events of their choice in accordance with the table given at Appendix D attached.

(d) Dancing
The candidates will be assessed in two dance performances of their choice as given in the syllabus. The External Examiner will mark them on each performance as follows:

<table>
<thead>
<tr>
<th>Qualities</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Knowledge of the steps/poses</td>
<td>04</td>
</tr>
<tr>
<td>(ii) Grace and poise</td>
<td>02</td>
</tr>
<tr>
<td>(iii) Rhythm and timing</td>
<td>02</td>
</tr>
<tr>
<td>(iv) Endurance</td>
<td>02</td>
</tr>
</tbody>
</table>

(e) Yoga
The candidates will be assessed in any four of the asanas given in the syllabus, to be nominated by the External Examiner. The External Examiner will mark the candidates in each asana as follows:

<table>
<thead>
<tr>
<th>Marks</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Perfect performance</td>
<td>05</td>
</tr>
<tr>
<td>(ii) Satisfactory performance with minor error in form</td>
<td>04</td>
</tr>
<tr>
<td>(iii) Performance with poor form</td>
<td>03</td>
</tr>
<tr>
<td>(iv) No form but knowledge of how to perform the asanas</td>
<td>02</td>
</tr>
<tr>
<td>(v) Poor form and knowledge of performance</td>
<td>01</td>
</tr>
</tbody>
</table>
APPENDIX A
PERFORMANCE TABLE - PHYSICAL EDUCATION - PHYSICAL EFFICIENCY TESTS

<table>
<thead>
<tr>
<th>Marks</th>
<th>Test No.1 50 m dash (Timings in seconds and tenths)</th>
<th>Test No.2 Standing long jump (Distance in cm)</th>
<th>Test No.3 Distance run (Timings in min. and s)</th>
<th>Test No.4 Push-ups (Numbers)</th>
<th>Test No.5 Shuttle run (Timings in s and tenths)</th>
<th>Test No.6 30 sit-ups (Numbers)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
<td>Boys</td>
<td>Girls</td>
<td>Boys 1000m</td>
<td>Girls 600m</td>
</tr>
<tr>
<td>5</td>
<td>7.3</td>
<td>7.7</td>
<td>179</td>
<td>164</td>
<td>4 min 40s</td>
<td>2 min 45s</td>
</tr>
<tr>
<td>4</td>
<td>7.6</td>
<td>7.9</td>
<td>172</td>
<td>152</td>
<td>4 min 50s</td>
<td>2 min 55s</td>
</tr>
<tr>
<td>3</td>
<td>7.8</td>
<td>8.3</td>
<td>165</td>
<td>147</td>
<td>5 min</td>
<td>3 min 05s</td>
</tr>
<tr>
<td>2</td>
<td>8.0</td>
<td>8.5</td>
<td>158</td>
<td>140</td>
<td>5 min 10s</td>
<td>3 min 15s</td>
</tr>
<tr>
<td>1</td>
<td>8.3</td>
<td>9.0</td>
<td>150</td>
<td>130</td>
<td>5 min 20s</td>
<td>3 min 25s</td>
</tr>
</tbody>
</table>

* Note: For timings in between or higher than those indicated in the table the lower mark should be given. For distances in between or lower than those indicated in the table the lower mark should be given.
# APPENDIX B

**PERFORMANCE TABLE - PHYSICAL EDUCATION - SPECIALISATION TESTS**

**ATHLETICS - TRACK EVENTS**

*(All Measurements in Metres and Centimetres)*

<table>
<thead>
<tr>
<th>Marks</th>
<th>50 m (s and tenths)</th>
<th>100 m (s and tenths)</th>
<th>200 m (s and tenths)</th>
<th>400 m (s and tenths)</th>
<th>800 m (min and s)</th>
<th>1500 m (min and s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Girls</td>
<td>Boys</td>
<td>Girls</td>
<td>Boys</td>
<td>Girls</td>
<td>Boys</td>
</tr>
<tr>
<td>10</td>
<td>7.3</td>
<td>13.0</td>
<td>15.5</td>
<td>26.5</td>
<td>31.0</td>
<td>57.0</td>
</tr>
<tr>
<td>9</td>
<td>7.5</td>
<td>13.2</td>
<td>15.7</td>
<td>27.0</td>
<td>31.5</td>
<td>58.0</td>
</tr>
<tr>
<td>8</td>
<td>7.6</td>
<td>13.3</td>
<td>16.0</td>
<td>27.3</td>
<td>32.0</td>
<td>59.0</td>
</tr>
<tr>
<td>7</td>
<td>7.7</td>
<td>13.5</td>
<td>16.3</td>
<td>27.5</td>
<td>32.5</td>
<td>60.0</td>
</tr>
<tr>
<td>6</td>
<td>7.8</td>
<td>13.6</td>
<td>16.5</td>
<td>27.7</td>
<td>33.0</td>
<td>61.0</td>
</tr>
<tr>
<td>5</td>
<td>7.9</td>
<td>13.7</td>
<td>16.7</td>
<td>28.0</td>
<td>33.5</td>
<td>62.0</td>
</tr>
<tr>
<td>4</td>
<td>8.0</td>
<td>14.6</td>
<td>17.0</td>
<td>28.5</td>
<td>34.0</td>
<td>63.0</td>
</tr>
<tr>
<td>3</td>
<td>8.1</td>
<td>15.1</td>
<td>17.5</td>
<td>29.0</td>
<td>34.5</td>
<td>63.5</td>
</tr>
<tr>
<td>2</td>
<td>8.2</td>
<td>15.5</td>
<td>18.0</td>
<td>29.5</td>
<td>35.0</td>
<td>64.0</td>
</tr>
<tr>
<td>1</td>
<td>8.4</td>
<td>16.0</td>
<td>18.5</td>
<td>30.0</td>
<td>35.5</td>
<td>64.5</td>
</tr>
</tbody>
</table>

*Note: For timings in between or higher than those indicated in the table the lower mark should be given.*
### APPENDIX C

**PERFORMANCE TABLE – PHYSICAL EDUCATION SPECIALIZATION TESTS**

**ATHELETIC – FIELD EVENTS**

<table>
<thead>
<tr>
<th>Marks</th>
<th>Long Jump (m &amp; cm)</th>
<th>High Jump (m &amp; cm)</th>
<th>Shot Put (m &amp; cm)</th>
<th>Hops step &amp; Jump (m &amp; cm)</th>
<th>Pole Vault (m &amp; cm)</th>
<th>Discuss (m &amp; cm)</th>
<th>Javelin (m &amp; cm)</th>
<th>Soft ball Throw (m &amp; cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
<td>Boys</td>
<td>Girls</td>
<td>Boys</td>
<td>Girls</td>
<td>Boys</td>
<td>Boys</td>
</tr>
<tr>
<td>10</td>
<td>5.00</td>
<td>4.50</td>
<td>1.45</td>
<td>1.35</td>
<td>9.00</td>
<td>7.50</td>
<td>10.00</td>
<td>2.00</td>
</tr>
<tr>
<td>9</td>
<td>4.70</td>
<td>4.20</td>
<td>1.40</td>
<td>1.30</td>
<td>8.00</td>
<td>7.00</td>
<td>9.60</td>
<td>1.90</td>
</tr>
<tr>
<td>8</td>
<td>4.40</td>
<td>3.90</td>
<td>1.35</td>
<td>1.25</td>
<td>7.50</td>
<td>6.50</td>
<td>9.20</td>
<td>1.80</td>
</tr>
<tr>
<td>7</td>
<td>4.10</td>
<td>3.60</td>
<td>1.30</td>
<td>1.20</td>
<td>7.00</td>
<td>6.00</td>
<td>8.80</td>
<td>1.70</td>
</tr>
<tr>
<td>6</td>
<td>3.80</td>
<td>3.30</td>
<td>1.25</td>
<td>1.15</td>
<td>6.50</td>
<td>5.50</td>
<td>8.40</td>
<td>1.60</td>
</tr>
<tr>
<td>5</td>
<td>3.50</td>
<td>3.00</td>
<td>1.20</td>
<td>1.10</td>
<td>6.00</td>
<td>5.00</td>
<td>8.00</td>
<td>1.50</td>
</tr>
<tr>
<td>4</td>
<td>3.20</td>
<td>2.70</td>
<td>1.15</td>
<td>1.05</td>
<td>5.50</td>
<td>4.50</td>
<td>7.60</td>
<td>1.40</td>
</tr>
<tr>
<td>3</td>
<td>2.90</td>
<td>2.40</td>
<td>1.10</td>
<td>1.00</td>
<td>5.00</td>
<td>4.00</td>
<td>7.20</td>
<td>1.30</td>
</tr>
<tr>
<td>2</td>
<td>2.60</td>
<td>2.10</td>
<td>1.05</td>
<td>0.95</td>
<td>4.50</td>
<td>3.50</td>
<td>6.80</td>
<td>1.20</td>
</tr>
<tr>
<td>1</td>
<td>2.30</td>
<td>1.80</td>
<td>0.95</td>
<td>0.90</td>
<td>4.00</td>
<td>3.00</td>
<td>6.40</td>
<td>1.10</td>
</tr>
</tbody>
</table>

Note: For distance in between or lower than those indicated in the table the lower marks should be given.
APPENDIX D
PERFORMANCE TABLE - PHYSICAL EDUCATION - SPECIALISATION TESTS - SWIMMING

<table>
<thead>
<tr>
<th>Marks</th>
<th>50 m free style (s and tenths)</th>
<th>100 m free style (min and s)</th>
<th>200 m free style (min and s)</th>
<th>400 m free style (min and s)</th>
<th>50 m breast stroke (min and s)</th>
<th>75m breast stroke (min and s)</th>
<th>100m breast stroke (min and s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
<td>Boys</td>
<td>Girls</td>
<td>Boys</td>
<td>Girls</td>
<td>Boys</td>
</tr>
<tr>
<td>10</td>
<td>45.0</td>
<td>55.0</td>
<td>1:30</td>
<td>1:50</td>
<td>3:00</td>
<td>3:40</td>
<td>6:00</td>
</tr>
<tr>
<td>9</td>
<td>46.3</td>
<td>56.3</td>
<td>1:32.5</td>
<td>1:53</td>
<td>3:05</td>
<td>3:46</td>
<td>6:10</td>
</tr>
<tr>
<td>8</td>
<td>47.5</td>
<td>57.5</td>
<td>1:35</td>
<td>1:55</td>
<td>3:10</td>
<td>3:50</td>
<td>6:20</td>
</tr>
<tr>
<td>7</td>
<td>50.0</td>
<td>60.0</td>
<td>1:40</td>
<td>2:00</td>
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*Note: For timings in between or higher than those indicated in the table the lower mark should be given.
## Performance Table - Physical Education - Specialisation Tests - Swimming (Continued)

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<th>75 m back stroke (min and s)</th>
<th>100m back stroke (min and s)</th>
<th>50m butterfly stroke (min and s)</th>
<th>75 m butterfly stroke (min and s)</th>
<th>100 m butterfly stroke (min and s)</th>
<th>Diving</th>
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*Note: For timings in between or higher than those indicated in the table the lower mark should be given.*
SCIENCE (52)

PHYSICS

SCIENCE Paper - 1

Aims:

1. To acquire knowledge and understanding of the terms, facts, concepts, definitions, laws, principles and processes of Physics.
2. To develop skills in practical aspects of handling apparatus, recording observations and in drawing diagrams, graphs, etc.
3. To develop instrumental, communication, deductive and problem-solving skills.
4. To discover that there is a living and growing physics relevant to the modern age in which we live.

CLASS IX

There will be one paper of two hours duration carrying 80 marks and Internal Assessment of practical work carrying 20 marks.

The paper will be divided into two sections, Section I (40 marks) and Section II (40 marks).

Section I (compulsory) will contain short answer questions on the entire syllabus.

Section II will contain six questions. Candidates will be required to answer any four of these six questions.

Note: Unless otherwise specified, only SI. Units are to be used while teaching and learning, as well as for answering questions.

1. Measurements and Experimentation
   (i) International System of Units, the required SI units with correct symbols are given at the end of this syllabus. Other commonly used system of units - fps and cgs.
   (ii) Measurements using common instruments, Vernier callipers and micro-metre screw gauge for length, and simple pendulum for time.

2. Motion in One Dimension
   Scalar and vector quantities, distance, speed, velocity, acceleration; graphs of distance-time and speed-time; equations of uniformly accelerated motion with derivations.

3. Laws of Motion
   (i) Contact and non-contact forces; cgs & SI units.
   (ii) Newton’s First Law of Motion (qualitative discussion) introduction of the idea of inertia, mass and force.

   Newton’s first law; statement and qualitative discussion; definitions of inertia and force from first law, examples of inertia as illustration of first law. (Inertial mass not included).
(iii) Newton’s Second Law of Motion (including $F=ma$); weight and mass.

Detailed study of the second law. Linear momentum, $p = mv$; change in momentum

$$\Delta p = \Delta (mv) = m\Delta v$$ for mass remaining constant, rate of change of momentum;

$$\Delta p/\Delta t = m \Delta v/\Delta t = ma$$ or $ma = t (u - v) (m/t)$

Simple numerical problems combining $F = \Delta p/\Delta t = ma$ and equations of motion. Units of force - only cgs and SI.

(iv) Newton’s Third Law of Motion (qualitative discussion only); simple examples.

Statement with qualitative discussion; examples of action - reaction pairs, ($F_{BA}$ and $F_{AB}$); action and reaction always act on different bodies.

(v) Gravitation

Universal Law of Gravitation. (Statement and equation) and its importance. Gravity, acceleration due to gravity, free fall. Weight and mass, Weight as force of gravity comparison of mass and weight; gravitational units of force, (Simple numerical problems), (problems on variation of gravity excluded)

4. Fluids

(i) Change of pressure with depth (including the formula $p=\rho gh$); Transmission of pressure in liquids; atmospheric pressure.

Thrust and Pressure and their units; pressure exerted by a liquid column $p = \rho h g$; simple daily life examples, (i) breadth of the base of a dam, (ii) Diver’s suit etc. some consequences of $p = \rho h g$; transmission of pressure in liquids; Pascal’s law; examples; atmospheric pressure; common manifestation and consequences. Variations of pressure with altitude, (qualitative only); applications such as weather forecasting and altimeter. (Simple numerical problems)

(ii) Buoyancy, Archimedes’ Principle; floatation; relationship with density; relative density; determination of relative density of a solid.

Buoyancy, upthrust ($F_B$); definition; different cases, $F_B = \rho g V = \rho g V/L$; weight $W$ of the body immersed; characteristic properties of upthrust; Archimedes’ principle; explanation of cases where bodies with density $\rho > \rho'$ or $\rho' < \rho$; upthrust, apparent weight of floating object; application to ship, submarine, iceberg, balloons, etc.

Simple numerical problems involving Archimedes’ principle, buoyancy and floatation.

5. Heat and Energy

(i) Concepts of heat and temperature.

Heat as energy. SI unit – joule,

$1 \text{ cal} = 4.186 \text{ J}$ exactly.

(ii) Anomalous expansion of water; graphs showing variation of volume and density of water with temperature in the 0 to 10 °C range. Hope’s experiment and consequences of Anomalous expansion.

(iii) Energy flow and its importance:

Understanding the flow of energy as Linear and linking it with the laws of Thermodynamics- ‘Energy is neither created nor destroyed’ and ‘No Energy transfer is 100% efficient’.

(iv) Energy sources.

Solar, wind, water and nuclear energy (only qualitative discussion of steps to produce electricity). Renewable versus non-renewable sources (elementary ideas with example).

Renewable energy: biogas, solar energy, wind energy, energy from falling of water, run-of-the river schemes, energy from waste, tidal energy, etc. Issues of economic viability and ability to meet demands.

Non-renewable energy – coal, oil, natural gas. Inequitable use of energy in urban and rural areas. Use of hydro electrical powers for light and tube wells.

(v) Global warming and Green House effect:
Meaning, causes and impact on the life on earth. Projections for the future; what needs to be done.

Energy degradation – meaning and examples.

6. Light

(i) Reflection of light; images formed by a pair of parallel and perpendicular plane mirrors;

   Laws of reflection; experimental verification; characteristics of images formed in a pair of mirrors, (a) parallel and (b) perpendicular to each other; uses of plane mirrors.

(ii) Spherical mirrors; characteristics of image formed by these mirrors. Uses of concave and convex mirrors. (Only simple direct ray diagrams are required).

   Brief introduction to spherical mirrors - concave and convex mirrors, centre and radius of curvature, pole and principal axis, focus and focal length; location of images from ray diagram for various positions of a small linear object on the principal axis of concave and convex mirrors; characteristics of images.

   \[ f = \frac{R}{2} \] (without proof); sign convention and direct numerical problems using the mirror formulae are included. (Derivation of formulae not required)

   Uses of spherical mirrors.

   Scale drawing or graphical representation of ray diagrams not required.

7. Sound

(i) Nature of Sound waves. Requirement of a medium for sound waves to travel; propagation and speed in different media; comparison with speed of light.

   Sound propagation, terms – frequency (f), wavelength (\( \lambda \)), velocity (V), relation \( V = f\lambda \). (Simple numerical problems) effect of different factors on the speed of sound; comparison of speed of sound with speed of light; consequences of the large difference in these speeds in air; thunder and lightning.

(ii) Infrasonic, sonic, ultrasonic frequencies and their applications.

Elementary ideas and simple applications only. Difference between ultrasonic and supersonic.

8. Electricity and Magnetism

(i) Simple electric circuit using an electric cell and a bulb to introduce the idea of current (including its relationship to charge); potential difference; insulators and conductors; closed and open circuits; direction of current (electron flow and conventional)

   Current Electricity: brief introduction of sources of direct current - cells, accumulators (construction, working and equations excluded); Electric current as the rate of flow of electric charge (direction of current - conventional and electronic), symbols used in circuit diagrams. Detection of current by Galvanometer or ammeter (functioning of the meters not to be introduced). Idea of electric circuit by using cell, key, resistance wire/resistance box/rheostat, qualitatively.; elementary idea about work done in transferring charge through a conductor wire; potential difference \( V = W/q \).

   (No derivation of formula) simple numerical problems.

   Social initiatives: Improving efficiency of existing technologies and introducing new eco-friendly technologies. Creating awareness and building trends of sensitive use of resources and products, e.g. reduced use of electricity.

(ii) Induced magnetism, Magnetic field of earth. Neutral points in magnetic fields.

   Magnetism: magnetism induced by bar magnets on magnetic materials; induction precedes attraction; lines of magnetic field and their properties; evidences of existence of earth’s magnetic field, magnetic compass. Uniform magnetic field of earth and non-uniform field of a bar magnet placed along magnetic north-south; neutral point; properties of magnetic field lines.

(iii) Introduction of electromagnet and its uses.
INTERNAL ASSESSMENT OF PRACTICAL WORK

Candidates will be asked to carry out experiments for which instructions are given. The experiments may be based on topics that are not included in the syllabus but theoretical knowledge will not be required. A candidate will be expected to be able to follow simple instructions, to take suitable readings and to present these readings in a systematic form. He/she may be required to exhibit his/her data graphically. Candidates will be expected to appreciate and use the concepts of least count, significant figures and elementary error handling.

A set of 6 to 10 experiments may be designed as given below or as found most suitable by the teacher. Students should be encouraged to record their observations systematically in a neat tabular form - in columns with column heads including units or in numbered rows as necessary. The final result or conclusion may be recorded for each experiment.

Some of the experiments may be demonstrated (with the help of students) if these cannot be given to each student as lab experiments.

1. Determine the least count of the Vernier callipers and measure the length and diameter of a small cylinder (average of three sets) - may be a metal rod of length 2 to 3 cm and diameter 1 to 2 cm.

2. Determine the pitch and least count of the given screw gauge and measure the mean radius of the given wire, taking three sets of readings in perpendicular directions.

3. Measure the length, breadth and thickness of a glass block using a metre rule (each reading correct to a mm), taking the mean of three readings in each case. Calculate the volume of the block in cm³ and m³. Determine the mass (not weight) of the block using any convenient balance in g and kg. Calculate the density of glass in cgs and SI units using mass and volume in the respective units. Obtain the relation between the two density units.

4. Measure the volume of a metal bob (the one used in simple pendulum experiments) from the readings of water level in a measuring cylinder using displacement method. Also calculate the same volume from the radius measured using Vernier callipers. Comment on the accuracies.

5. Obtain five sets of readings of the time taken for 20 oscillations of a simple pendulum of lengths about 70, 80, 90, 100 and 110 cm; calculate the time periods (T) and their squares (T²) for each length (l). Plot a graph of l vs. T². Draw the best fit straight - line graph. Also, obtain its slope. Calculate the value of g in the laboratory. It is 4π² x slope.

6. Take a beaker of water. Place it on the wire gauze on a tripod stand. Suspend two thermometers - one with Celsius and the other with Fahrenheit scale. Record the thermometer readings at 5 to 7 different temperatures. You may start with ice-cold water, then allow it to warm up and then heat it slowly taking temperature (at regular intervals) as high as possible. Plot a graph of T_F vs. T_C. Obtain the slope. Compare with the theoretical value.

7. Using a plane mirror strip mounted vertically on a board, obtain the reflected rays for three rays incident at different angles. Measure the angles of incidence and angles of reflection. See if these angles are equal.

8. Place three object pins at different distances on a line perpendicular to a plane mirror fixed vertically on a board. Obtain two reflected rays (for each pin) fixing two pins in line with the image. Obtain the positions of the images in each case by extending backwards (using dashed lines), the lines representing reflected rays. Measure the object distances and image distances in the three cases. Tabulate. Are they equal? Generalize the result.

9. Obtain the focal length of a concave mirror (a) by distant object method, focusing its real image on a screen or wall and (b) by one needle method removing parallax or focusing the image of the illuminated wire gauze attached to a ray box. One could also improvise with a candle and a screen. Enter your observations in numbered rows.

10. Connect a suitable dc source (two dry cells or an acid cell), a key and a bulb (may be a small one used in torches) in series. Close the circuit by inserting the plug in the key. Observe the bulb as it lights up. Now open the circuit, connect another identical bulb in between the first bulb and the cell so that the two bulbs are in series. Close the key. Observe the lighted bulbs. How does the light from any one bulb compare with that in the first case when you had only one bulb? Disconnect the second bulb. Reconnect the circuit as in the first experiment. Now connect the second bulb across the first bulb. The two bulbs are connected in parallel. Observe the brightness of any one bulb. Compare with previous results. Draw your own conclusions.
regarding the current and resistance in the three cases.

11. Plot the magnetic field lines of earth (without any magnet nearby) using a small compass needle. On another sheet of paper place a bar magnet with its axis parallel to the magnetic lines of the earth, i.e. along the magnetic meridian or magnetic north south. Plot the magnetic field in the region around the magnet. Identify the regions where the combined magnetic field of the magnet and the earth is (a) strongest, (b) very weak but not zero, and (c) zero. Why is neutral point, so called?

12. Using a spring balance obtain the weight (in N) of a metal ball in air and then completely immersed in water in a measuring cylinder. Note the volume of the ball from the volume of the water displaced. Calculate the upthrust from the first two weights. Also calculate the mass and then weight of the water displaced by the bob \( M = V \cdot \rho, W = mg \). Use the above result to verify Archimedes principle.
There will be one paper of **two hours** duration carrying 80 marks and Internal Assessment of practical work carrying 20 marks.

The paper will be divided into **two sections**, Section I (40 marks) and Section II (40 marks).

**Section I** (compulsory) will contain short answer questions on the entire syllabus.

**Section II** will contain six questions. Candidates will be required to answer any **four** of these six questions.

**Note:** Unless otherwise specified, only S. I. Units are to be used while teaching and learning, as well as for answering questions.

### 1. Force, Work, Power and Energy

(i) Turning forces concept; moment of a force; forces in equilibrium; centre of gravity; [discussions using simple examples and simple numerical problems].

Elementary introduction of translational and rotational motions; moment (turning effect) of a force, also called torque and its cgs and SI units; common examples - door, steering wheel, bicycle pedal, etc.; clockwise and anti-clockwise moments; conditions for a body to be in equilibrium (translational and rotational); principle of moment and its verification using a metre rule suspended by two spring balances with slotted weights hanging from it; simple numerical problems; Centre of gravity (qualitative only) with examples of some regular bodies and irregular lamina.

(ii) Uniform circular motion.

As an example of constant speed, though acceleration (force) is present. Differences between centrifugal and centripetal force.

(iii) Work, energy, power and their relation with force.

**Definition of work.** \( W = FS \cos \theta \); special cases of \( \theta = 0^\circ, 90^\circ \). \( W = mgh \). **Definition of energy, energy as work done.** Various units of work and energy and their relation with SI units.[erg, calorie, kW h and eV]. **Definition of Power,** \( P=\frac{W}{t}; \) SI and cgs units; other units, kilowatt (kW), megawatt (MW) and gigawatt (GW); and horse power (1hp=746W) [Simple numerical problems on work, power and energy].

(iv) Different types of energy (e.g. chemical energy, Mechanical energy, heat energy, electrical energy, nuclear energy, sound energy, light energy).

**Mechanical energy:** potential energy \( U = mgh \) (derivation included) gravitational PE; examples; kinetic energy \( K= \frac{1}{2} mv^2 \) (derivation included); forms of kinetic energy: translational, rotational and vibrational - only simple examples. [Numerical problems on \( K \) and \( U \) only in case of translational motion]; qualitative discussions of electrical, chemical, heat, nuclear, light and sound energy, conversion from one form to another; common examples.

(v) Machines as force multipliers; load, effort, mechanical advantage, velocity ratio and efficiency; simple treatment of levers, pulley systems showing the utility of each type of machine.

**Functions and uses of simple machines:** Terms- effort \( E \), load \( L \), mechanical advantage \( MA = \frac{L}{E} \), velocity ratio \( VR = \frac{V_E}{V_L} = \frac{d_E}{d_L} \), input (\( W_i \)), output (\( W_o \)), efficiency (\( \eta \)), relation between \( \eta \) and \( MA, VR \) (derivation included); for all practical machines \( \eta < 1; MA < VR \).

Lever: principle. First, second and third class of levers; examples: \( MA \) and \( VR \) in each case. Examples of each of these classes of levers as also found in the human body.

Pulley system: single fixed, single movable, block and tackle; \( MA, VR \) and \( \eta \) in each case.

(vi) Principle of Conservation of energy.

**Statement of the principle of conservation of energy:** theoretical verification that \( U + K = \) constant for a freely falling body. Application of this law to simple pendulum (qualitative only); [simple numerical problems].

### 2. Light

(i) Refraction of light through a glass block and a triangular prism - qualitative treatment of simple applications such as real and apparent depth of objects in water and apparent bending of sticks in water. Applications of refraction of light.
Partial reflection and refraction due to change in medium. Laws of refraction; the effect on speed \((V)\), wavelength \((\lambda)\) and frequency \((f)\) due to refraction of light; conditions for a light ray to pass undeviated. Values of speed of light \((c)\) in vacuum, air, water and glass; refractive index \(\mu = c/V\), \(V = f\lambda\). Values of \(\mu\) for common substances such as water, glass and diamond; experimental verification; refraction through glass block; lateral displacement; multiple images in thick glass plate/mirror; refraction through a glass prism simple applications: real and apparent depth of objects in water; apparent bending of a stick under water. (Simple numerical problems and approximate ray diagrams required).

(ii) Total internal reflection: Critical angle; examples in triangular glass prisms; comparison with reflection from a plane mirror (qualitative only). Applications of total internal reflection. Transmission of light from a denser medium (glass/water) to a rarer medium (air) at different angles of incidence; critical angle \((C)\mu = 1/\sin C\). Essential conditions for total internal reflection. Total internal reflection in a triangular glass prism; ray diagram; different cases - angles of prism \((60^\circ,60^\circ,60^\circ)\), \((60^\circ,30^\circ,90^\circ)\), \((45^\circ,45^\circ,90^\circ)\); use of right angle prism to obtain \(\delta = 90^\circ\) and \(180^\circ\) (ray diagram); comparison of total internal reflection from a prism and reflection from a plane mirror.

(iii) Lenses (converging and diverging) including characteristics of the images formed (using ray diagrams only); magnifying glass; location of images using ray diagrams and thereby determining magnification.

(iv) Types of lenses (converging and diverging), convex and concave, action of a lens as a set of prisms; technical terms; centre of curvature, radii of curvature, principal axis, foci, focal plane and focal length; detailed study of refraction of light in spherical lenses through ray diagrams; formation of images - principal rays or construction rays; location of images from ray diagram for various positions of a small linear object on the principal axis; characteristics of images. Sign convention and direct numerical problems using the lens formula are included.(derivation of formula not required)

Scale drawing or graphical representation of ray diagrams not required.

Power of a lens (concave and convex) – [simple direct numerical problems]; magnifying glass or simple microscope: location of image and magnification from ray diagram only [formula and numerical problems not included]. Applications of lenses.

(v) Using a triangular prism to produce a visible spectrum from white light; Electromagnetic spectrum. Scattering of light. Deviation produced by a triangular prism; dependence on colour (wavelength) of light; dispersion and spectrum; electromagnetic spectrum: broad classification (names only arranged in order of increasing wavelength); properties common to all electromagnetic radiations; properties and uses of infrared and ultraviolet radiation. Simple application of scattering of light e.g. blue colour of the sky.

3. Sound

(i) Reflection of Sound Waves; echoes: their use; simple numerical problems on echoes.

Production of echoes, condition for formation of echoes; simple numerical problems; use of echoes by bats, dolphins, fishermen, medical field. SONAR.

(ii) Natural vibrations, Damped vibrations, Forced vibrations and Resonance - a special case of forced vibrations. Meaning and simple applications of natural, damped, forced vibrations and resonance.

(iii) Loudness, pitch and quality of sound:

Characteristics of sound: loudness and intensity; subjective and objective nature of these properties; sound level in db (as unit only); noise pollution; interdependence of: pitch and frequency; quality and waveforms (with examples).

4. Electricity and Magnetism

(i) Ohm’s Law; concepts of emf, potential difference, resistance; resistances in series and parallel, internal resistance.

Concepts of pd \((V)\), current \((I)\), resistance \((R)\) and charge \((Q)\). Ohm’s law: statement,
\[ V = IR; \text{ SI units}; \text{ experimental verification}; \text{ graph of } V \text{ vs } I \text{ and resistance from slope}; \text{ ohmic and non-ohmic resistors, factors affecting resistance (including specific resistance) and internal resistance}; \text{ superconductors, electromotive force (emf)}; \text{ combination of resistances in series and parallel and derivation of expressions for equivalent resistance}. \text{ Simple numerical problems using the above relations}. \text{ [Simple network of resistors].}

(ii) Electrical power and energy.

Electrical energy; examples of heater, motor, lamp, loudspeaker, etc. Electrical power; measurement of electrical energy, \( W = QV = VIt \text{ from the definition of pd}. \text{ Combining with ohm’s law } W = VIt = I^2 Rt = (V^2/R)t \text{ and electrical power } P = (W/t) = VIt = FR = V^2/R. \text{ Units: SI and commercial}; \text{ Power rating of common appliances, household consumption of electric energy; calculation of total energy consumed by electrical appliances; } W = Pt \text{ (kilowatt} \times \text{ hour} = kW h), \text{ [simple numerical problems].}

(iii) Household circuits – main circuit; switches; fuses; earthing; safety precautions; three-pin plugs; colour coding of wires.

House wiring (ring system), power distribution; main circuit (3 wires-live, neutral, earth) with fuse / MCB, main switch and its advantages - circuit diagram; two-way switch, staircase wiring, need for earthing, fuse, 3-pin plug and socket; Conventional location of live, neutral and earth points in 3 pin plugs and sockets. Safety precautions, colour coding of wires.

(iv) Magnetic effect of a current (principles only, laws not required); electromagnetic induction (elementary); transformer.

Oersted’s experiment on the magnetic effect of electric current; magnetic field \( B \) and field lines due to current in a straight wire (qualitative only), right hand thumb rule – magnetic field due to a current in a loop; Electromagnets: their uses; comparisons with a permanent magnet; Fleming’s Left Hand Rule, the DC electric motor- simple sketch of main parts (coil, magnet, split ring commutators and brushes); brief description and type of energy transfer(working not required); Simple introduction to electromagnetic induction; frequency of AC in household supplies , Fleming’s Right Hand Rule, AC Generator - Simple sketch of main parts, brief description and type of energy transfer(working not required). Advantage of AC over DC. Transformer- its types, characteristics of primary and secondary coils in each type (simple labelled diagram and its uses).


Heat and its units (calorie, joule), temperature and its units \( ^\circ C, K \); thermal (heat) capacity \( C' = Q/\Delta T \dots \text{ (SI unit of } C \text{): Specific heat Capacity } C = Q/m \Delta T \text{ (SI unit of } C \text{) Mutual relation between Heat Capacity and Specific Heat capacity, values of } C \text{ for some common substances (ice, water and copper). Principle of method of mixtures including mathematical statement. Natural phenomenon involving specific heat. Consequences of high sp. heat of water. \text{ [Simple numerical problem].}

(ii) Latent heat; loss and gain of heat involving change of state for fusion only.

Change of phase (state); heating curve for water; latent heat; sp latent heat of fusion (SI unit). Simple numerical problems. Common physical phenomena involving latent heat of fusion.

6. Modern Physics

(i) Radioactivity and changes in the nucleus; background radiation and safety precautions.

Brief introduction (qualitative only) of the nucleus, nuclear structure, atomic number (Z), mass number (A).Radioactivity as spontaneous disintegration. \( \alpha, \beta \) and \( \gamma \) - their nature and properties; changes within the nucleus. One example each of \( \alpha \) and \( \beta \) decay with equations showing changes in \( Z \) and \( A \). Uses of radioactivity - radio isotopes. Harmful effects. Safety precautions. Background radiation.

Radiation: X-rays; radioactive fallout from nuclear plants and other sources.

Nuclear Energy: working on safe disposal of waste. Safety measures to be strictly reinforced.

(ii) Nuclear fission and fusion; basic introduction and equations.
A NOTE ON SI UNITS

SI units (Systeme International d’Unites) were adopted internationally in 1968.

Fundamental units

The system has seven fundamental (or basic) units, one for each of the fundamental quantities.

<table>
<thead>
<tr>
<th>Fundamental quantity</th>
<th>Unit</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass</td>
<td>kilogram</td>
<td>kg</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>metre</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>second</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td>Electric current</td>
<td>ampere</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Temperature</td>
<td>kelvin</td>
<td>K</td>
<td></td>
</tr>
<tr>
<td>Luminous intensity</td>
<td>candela</td>
<td>cd</td>
<td></td>
</tr>
<tr>
<td>Amount of substance</td>
<td>mole</td>
<td>mol</td>
<td></td>
</tr>
</tbody>
</table>

Derived units

These are obtained from the fundamental units by multiplication or division; no numerical factors are involved. Some derived units with complex names are:

<table>
<thead>
<tr>
<th>Derived quantity</th>
<th>Unit</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>cubic metre</td>
<td>m³</td>
<td></td>
</tr>
<tr>
<td>Density</td>
<td>kilogram per cubic metre</td>
<td>kg.m³</td>
<td></td>
</tr>
<tr>
<td>Velocity</td>
<td>metre per second</td>
<td>m.s⁻¹</td>
<td></td>
</tr>
<tr>
<td>Acceleration</td>
<td>metre per second squared</td>
<td>m. s²</td>
<td></td>
</tr>
<tr>
<td>Momentum</td>
<td>kilogram metre per second</td>
<td>kg.m.s⁻¹</td>
<td></td>
</tr>
</tbody>
</table>

Some derived units are given special names due to their complexity when expressed in terms of the fundamental units, as below:

<table>
<thead>
<tr>
<th>Derived quantity</th>
<th>Unit</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Force</td>
<td>newton</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Pressure</td>
<td>pascal</td>
<td>Pa</td>
<td></td>
</tr>
<tr>
<td>Energy, Work</td>
<td>joule</td>
<td>J</td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>watt</td>
<td>W</td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>hertz</td>
<td>Hz</td>
<td></td>
</tr>
<tr>
<td>Electric charge</td>
<td>coulomb</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Electric resistance</td>
<td>ohm</td>
<td>Ω</td>
<td></td>
</tr>
</tbody>
</table>

Electromotive force | volt | V

When the unit is named after a person, the symbol has a capital letter.

Standard prefixes

Decimal multiples and submultiples are attached to units when appropriate, as below:

<table>
<thead>
<tr>
<th>Multiple</th>
<th>Prefix</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>10⁹</td>
<td>giga</td>
<td>G</td>
</tr>
<tr>
<td>10⁶</td>
<td>mega</td>
<td>M</td>
</tr>
<tr>
<td>10³</td>
<td>kilo</td>
<td>k</td>
</tr>
<tr>
<td>10⁻¹</td>
<td>deci</td>
<td>d</td>
</tr>
<tr>
<td>10⁻²</td>
<td>centi</td>
<td>c</td>
</tr>
<tr>
<td>10⁻³</td>
<td>milli</td>
<td>m</td>
</tr>
<tr>
<td>10⁻⁶</td>
<td>micro</td>
<td>μ</td>
</tr>
<tr>
<td>10⁻⁹</td>
<td>nano</td>
<td>n</td>
</tr>
<tr>
<td>10⁻¹²</td>
<td>pico</td>
<td>p</td>
</tr>
<tr>
<td>10⁻¹⁵</td>
<td>femto</td>
<td>f</td>
</tr>
</tbody>
</table>

INTERNAL ASSESSMENT OF PRACTICAL WORK

Candidates will be asked to carry out experiments for which instructions will be given. The experiments may be based on topics that are not included in the syllabus but theoretical knowledge will not be required. A candidate will be expected to be able to follow simple instructions, to take suitable readings and to present these readings in a systematic form. He/she may be required to exhibit his/her data graphically. Candidates will be expected to appreciate and use the concepts of least count, significant figures and elementary error handling.

Note: Teachers may design their own set of experiments, preferably related to the theory syllabus. A comprehensive list is suggested below.

1. Lever - There are many possibilities with a meter rule as a lever with a load (known or unknown) suspended from a point near one end (say left), the lever itself pivoted on a knife edge, use slotted weights suspended from the other (right) side for effort.

   Determine the mass of a metre rule using a spring balance or by balancing it on a knife edge at some point away from the middle and a 50g weight on the other side. Next pivot (F) the metre rule at
the 40cm, 50cm and 60cm mark, each time suspending a load L or the left end and effort E near the right end. Adjust E and or its position so that the rule is balanced. Tabulate the position of L, F and E and the magnitudes of L and E and the distances of load arm and effort arm. Calculate MA=L/E and VR = effort arm/load arm. It will be found that MA <VR in one case, MA=VR in another and MA>VR in the third case. Try to explain why this is so. Also try to calculate the real load and real effort in these cases.

2. Determine the VR and MA of a given pulley system.

3. Trace the course of different rays of light refracting through a rectangular glass slab at different angles of incidence, measure the angles of incidence, refraction and emergence. Also measure the lateral displacement.

4. Determine the focal length of a convex lens by (a) the distant object method and (b) using a needle and a plane mirror.

5. Determine the focal length of a convex lens by using two pins and formula f = uv/(u+v).

6. For a triangular prism, trace the course of rays passing through it, measure angles i₁, i₂, A and δ. Repeat for four different angles of incidence (say i₁=40⁰, 50⁰, 60⁰ and 70⁰). Verify i₁ + i₂ = A + δ and A = r₁ + r₂.

7. For a ray of light incident normally (i₁=0) on one face of a prism, trace course of the ray. Measure the angle δ. Explain briefly. Do this for prisms with A=60⁰, 45⁰ and 90⁰.

8. Calculate the sp. heat of the material of the given calorimeter, from the temperature readings and masses of cold water, warm water and its mixture taken in the calorimeter.


10. Determination of specific latent heat of ice.

11. Using as simple electric circuit, verify Ohm’s law. Draw a graph, and obtain the slope.

12. Set up model of household wiring including ring main circuit. Study the function of switches and fuses.

Teachers may feel free to alter or add to the above list. The students may perform about 10 experiments. Some experiments may be demonstrated.

**EVALUATION**

The practical work/project work are to be evaluated by the subject teacher and by an External Examiner. (The External Examiner may be a teacher nominated by the Head of the school, who could be from the faculty, but not teaching the subject in the relevant section/class. For example, a teacher of Physics of Class VIII may be deputed to be an External Examiner for Class X, Physics projects.)

The Internal Examiner and the External Examiner will assess the practical work/project work independently.

**Award of marks (20 Marks)**

Subject Teacher (Internal Examiner) 10 marks

External Examiner 10 marks

The total marks obtained out of 20 are to be sent to the Council by the Head of the school.

The Head of the school will be responsible for the entry of marks on the mark sheets provided by the Council.
SANSKRIT
SECOND LANGUAGE
(Under Group I)

(Candidates offering Sanskrit as a Group II subject may not opt for Sanskrit as a Group I subject)

CLASSES IX AND X

There will be one paper of three hours duration carrying 80 marks and Internal Assessment of 20 marks.

The paper will be divided into two sections, Section A and Section B.

Section A: Language 40 marks
Section B: Prescribed Texts 40 marks

Candidates will be required to attempt all questions from Section A. They must attempt four questions from Section B from ONLY two of the prescribed textbooks.

SECTION A: LANGUAGE - 40 Marks

Four questions will be set, all of which will be compulsory.

1. Composition: Candidates will be required to write, in the language, one short composition which may include short explanations, directions, descriptions or narratives. There will be a choice of subjects which will be varied and may be suggested by language or other stimuli such as pictures or objects.

2. Letter: Candidates will be required to write a letter from a choice of two subjects. Suggestions may be given. The layout of the letter with address, introduction, conclusion, etc., will form part of the assessment.

3. Comprehension: An unseen passage will be given in Sanskrit. Questions in the language will be set for answers in the language, designed to test the candidates’ understanding of the content of the passage.

4. Grammar: In addition to the grammar topics listed below, questions will also be set from the grammar topics covered in the prescribed text books. These will include tests in vocabulary, syntax and idiom, synthesis in sentence construction, formation of sentences in the language correctly embodying given words or forms.

I (क) स्वर और व्यंजन का सामान्य ज्ञान और उनका उच्चारण-स्थान।
(ii) सन्धि :  
(i) स्वर-सन्धि  
(ii) हत-सन्धि  
(iii) व्यवस्थान-सन्धि  

(ग) शब्द रूप :  
(i) पुंसलं-मु, हः, गु, लिख, म, भव, विभव, राजन, करण।  
(ii) स्त्रीलिङ्ग-रो, नो, बेन, वृक्ष, वध, सरितु मातृ।  
(iii) सामान्य स्त्रों में नीचे लिखी शब्दों के प्रसंस्करण, आकलन एवं उच्चारण के रूप।  
(iv) सत्तनाम-सर्व, तन्त, वद्य, किंतु, गुरु, अस्त्र।  
(v) एक से दस तक संख्यावाच्य शब्द सभी लिंगों में।  

(घ) वाक्य रूप :  
(i) निम्नलिखित लक्षर-ले, लृ, लद्द, ले, ली एवं निम्नलिखित।  
(ii) इन लक्षरों में नीचे लिखी वाक्यों के प्रसंस्करण, आकलन एवं उच्चारण के रूप।  
(iii) परसंस्करण-मु, पत्ता, चा, गु, हु, रु, जी, न, असु, भी, ब्यु, ब्यु, न्यु, फ्रू, भ्र, प्रछ।  
(iv) आकलन-ले, बृहू, जन, बु, से।  
(v) उच्चारण-नी, भ्र, श्र, श्र, कृ।  

(ड) कारकों का सामान्य ज्ञान।

II (क) समास-अव्ययभाषा, तत्सुन, कर्मधारण,प्रबंध एवं बहुमीह।
(i) करक तथा उपयोग विभागों  
(घ) प्रवाह  
(i) कृत्त-कृत्त, भुपु, का (क), तव्व, अनीय, तव्व।
SECTION B: PRESCRIBED TEXTS - 40 Marks

The question paper will consist of structured and short answer questions. Candidates will be required to answer four questions from **ONLY two** of the prescribed textbooks. All questions will be set in the language and candidates will be required to answer in the language. The questions set will be designed to test the candidates’ understanding of the subject matter of the prescribed books.

*Note: For list of Prescribed Textbooks, see Appendix - I.*

INTERNAL ASSESSMENT – 20 Marks

The teacher shall set and mark specific work assigned to candidates over the two years.

EVALUATION

The assignments/project work are to be evaluated by the subject teacher and by an External Examiner. (The External Examiner may be a teacher nominated by the Head of the school, who could be from the faculty, **but not teaching the subject in the section/class**. For example, a teacher of Sanskrit of Class VIII may be deputed to be an External Examiner for Class X, Sanskrit projects.) The Internal Examiner and the External Examiner will assess the assignments independently.

Award of marks (20 Marks)

Subject Teacher (Internal Examiner) 10 marks
External Examiner 10 marks

The total marks obtained out of 20 are to be sent to the Council by the Head of the school.

The Head of the school will be responsible for the entry of marks on the mark sheets provided by the Council.
<table>
<thead>
<tr>
<th>Grade</th>
<th>Content/Analysis of Idea, Thought/Feeling</th>
<th>Expression/Effective Expression of Idea</th>
<th>Structure/Organisation of Material</th>
<th>Vocabulary/Use of Words, Phrases</th>
<th>Originality/Imaginative/Innovative</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>The candidate analyses the ideas, feelings and experiences effectively. Reasoning is logical and effective.</td>
<td>The candidate expresses the ideas, thoughts and feelings effectively.</td>
<td>The work is very well structured with a sense of introduction, body, middle and conclusion, paragraphing and appropriate sentence construction.</td>
<td>The use of vocabulary exhibits a high level of competence in handling language.</td>
<td>The work is imaginative, interesting and engrossing.</td>
<td>4</td>
</tr>
<tr>
<td>II</td>
<td>The candidate analyses the ideas, feelings and experiences with well defined explanations, reasoning is logical and persuasive.</td>
<td>The candidate expresses the ideas, thoughts and feelings well and with clarity.</td>
<td>The work is very well structured with some sense of conclusion and of paragraph lengths.</td>
<td>The vocabulary exhibits competence of word usage; correctness of grammar and spelling.</td>
<td>The candidate's work is quite interesting and engrossing.</td>
<td>3</td>
</tr>
<tr>
<td>III</td>
<td>The candidate analyses the ideas, feelings and experiences with a fair degree of detail and explanation. Reasoning is fairly logical and persuasive.</td>
<td>The candidate expresses the ideas, thoughts and feelings fairly well and with a fair degree of clarity.</td>
<td>The work is fairly well structured; Candidate follows simple paragraphing.</td>
<td>The candidate uses straightforward vocabulary and fairly good pattern of spellings.</td>
<td>The candidate demonstrates the ability to sustain the interest of the reader.</td>
<td>2</td>
</tr>
<tr>
<td>IV</td>
<td>The candidate attempts to analyze ideas, feelings and experiences with simple explanation and detail. Reasoning and arguments are not very convincing.</td>
<td>The candidate expresses the ideas, thoughts and feelings intelligibly and in simple language.</td>
<td>The work shows some understanding of paragraphing and structure.</td>
<td>The candidate's vocabulary is limited and the spelling, punctuation and grammar is sometimes poor.</td>
<td>The candidate is, to some extent, able to sustain the interest of the reader.</td>
<td>1</td>
</tr>
<tr>
<td>V</td>
<td>The candidate attempts a basic analysis of ideas, feelings and experiences with few simple explanations and few details. Is unable to present proper arguments.</td>
<td>The candidate is unable to expresses the ideas, thoughts and feelings, uses simple language and the work is not very intelligible.</td>
<td>The candidate does not display an understanding of structure and paragraphing.</td>
<td>There is consistent weakness in spelling, punctuation and grammar.</td>
<td>The candidate is unable to sustain the interest of the reader.</td>
<td>0</td>
</tr>
</tbody>
</table>
# INTERNAL ASSESSMENT IN SANSKRIT - GUIDELINES FOR MARKING WITH GRADES - ORAL ASSIGNMENT

<table>
<thead>
<tr>
<th>Grade</th>
<th>Fluency of Language</th>
<th>Subject Matter</th>
<th>Organization</th>
<th>Vocabulary/ Delivery</th>
<th>Understanding</th>
<th>Gesture</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Speaks with fluency and has full operational command over the language.</td>
<td>Matter is relevant, rich in content and original.</td>
<td>Content is well sequenced and well organized.</td>
<td>Uses appropriate vocabulary and pronounces words correctly.</td>
<td>While speaking, the candidate emphasizes the important points.</td>
<td>Uses natural and spontaneous gestures that are not out of place.</td>
<td>3</td>
</tr>
<tr>
<td>II</td>
<td>The candidate speaks with fairly good fluency and has reasonable operational command of the language.</td>
<td>The subject matter is mostly relevant, consisting of a few original ideas.</td>
<td>The content is satisfactorily sequenced and well organized.</td>
<td>The candidate pronounces most words correctly and uses simple vocabulary.</td>
<td>While speaking the candidate emphasizes most important points.</td>
<td>Uses some natural gestures.</td>
<td>2</td>
</tr>
<tr>
<td>III</td>
<td>The candidate speaks with poor fluency and does not communicate except for the most basic information.</td>
<td>The subject matter is irrelevant and lacks originality.</td>
<td>The subject content is very poor and lacks organisational structure.</td>
<td>The candidate pronounces many words incorrectly and uses inappropriate vocabulary.</td>
<td>While speaking, the candidate emphasizes some important points.</td>
<td>Uses very few natural gestures.</td>
<td>1</td>
</tr>
<tr>
<td>IV</td>
<td>The candidate cannot communicate even the most basic information.</td>
<td>The subject matter is negligible.</td>
<td>The subject content comprises of mere words with no structured sentences.</td>
<td>The candidate is unable to correctly pronounce most words and has a limited vocabulary.</td>
<td>While speaking, the candidate is unable to emphasize important points.</td>
<td>Uses no natural gestures.</td>
<td>0</td>
</tr>
<tr>
<td>Grade</td>
<td>Understanding/ Comprehension Main Idea, Central Theme</td>
<td>Recall</td>
<td>Vocabulary</td>
<td>Context/ Correlation to Other Areas</td>
<td>Marks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>-----------------------------------------------------</td>
<td>--------</td>
<td>------------</td>
<td>------------------------------------</td>
<td>-------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>The candidate accurately understands the central idea of the passage as well as the relevant points in the selected passage/ talk.</td>
<td>The candidate recalls all the important points made (written/ verbal).</td>
<td>The candidate uses appropriate and correct vocabulary while recalling the points made.</td>
<td>The candidate clearly understands the context and can widely correlate the passage to the other areas.</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>The candidate gives ideas fairly close to the central / main idea of the passage as well as understand some of the relevant points heard in the selected passage/ talk.</td>
<td>The candidate recalls some of the important points made (written/ verbal).</td>
<td>The candidate uses correct but simple vocabulary while recalling the points made.</td>
<td>The candidate can moderately understand the context of the passage and can moderately correlate the passage to the other areas.</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>The candidate cannot fully comprehend the passage and gives only a few ideas related to the central theme of the passage.</td>
<td>The candidate recalls very few of the important points made (written/verbal).</td>
<td>The candidate makes various errors in vocabulary while recalling the points made.</td>
<td>The candidate can only faintly understand the context of the passage and relate it to the other areas.</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>The candidate is neither able to understand the central/main idea of the passage; nor able to understand relevant points heard in the passage/talk.</td>
<td>The candidate is unable to recall the important points made (written/verbal)</td>
<td>The candidate uses incorrect vocabulary while recalling the points made.</td>
<td>The candidate is unable to understand the context of the passage and is unable to correlate the passage to the other areas.</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## INTERNAL ASSESSMENT IN SANSKRIT (PRESCRIBED TEXTS) - GUIDELINES FOR MARKING WITH GRADES

<table>
<thead>
<tr>
<th>Grade</th>
<th>Understanding of Text (Narrative)</th>
<th>Examples from Text</th>
<th>Understanding of text- Interpretation and Evaluation</th>
<th>Appreciation of Language, Characterization</th>
<th>Critical Appreciation -Personal Response</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>The candidate demonstrates expertise in giving an appropriate account of the text, with well-chosen reference to narrative and situation.</td>
<td>The account is suitably supported by relevant examples from the text.</td>
<td>The candidate understands the text with due emphasis on interpretation and evaluation.</td>
<td>The candidate appreciates and evaluates significant ways (structure, character, imagery) in which writers have achieved their effects.</td>
<td>The candidate is able to effectively reflect personal response (critical appreciation) to the text.</td>
<td>4</td>
</tr>
<tr>
<td>II</td>
<td>The candidate demonstrates a high level of competence in giving an account of the text, with appropriate references to the narrative and situation.</td>
<td>The account is supported by examples from the text.</td>
<td>The candidate understands the text with some emphasis on interpretation and evaluation.</td>
<td>The candidate appreciates and evaluates significant ways in which writers have achieved their effects.</td>
<td>The candidate is able to reflect a personal response to the text.</td>
<td>3</td>
</tr>
<tr>
<td>III</td>
<td>The candidate demonstrates competence in giving an account of the text with some reference to the narrative and situation.</td>
<td>The candidate understands the text and shows a basic recognition of the theme and can support it by a very few examples.</td>
<td>The candidate recognizes some aspects of the text used by authors to present ideas.</td>
<td>The candidate recognizes some of the significant ways in which the writers have used the language.</td>
<td>The candidate is able to communicate a personal response, which shows appreciation.</td>
<td>2</td>
</tr>
<tr>
<td>IV</td>
<td>The candidate gives broad account of the text with reference to the narrative and situation.</td>
<td>The candidate understands the basic meaning of the text.</td>
<td>The candidate relates the text to other texts studied.</td>
<td>The candidate recognizes differences in the way authors write.</td>
<td>The candidate communicates straightforward personal response to the text.</td>
<td>1</td>
</tr>
<tr>
<td>V</td>
<td>The candidate is unable to demonstrate an understanding of the basic events in the text.</td>
<td>The candidate is unable to understand the text or support it with any examples.</td>
<td>The candidate is unable to relate to the other text studied.</td>
<td>The candidate is unable to recognize the differences in the way authors write.</td>
<td>The candidate is unable to give a personal view of the text studied.</td>
<td>0</td>
</tr>
</tbody>
</table>
SOCIALY USEFUL PRODUCTIVE WORK AND COMMUNITY SERVICE

CLASSES IX-X

Emphasis should be placed on work practice and classroom discussions in these classes. A component of Contemporary Studies may be correlated with SUPW.

Work practice will include one main craft or equivalent service and at least one subsidiary craft or equivalent service.

MAIN CRAFTS/SERVICES

(i) Health and Hygiene

Growing medical plants; eradication of communicable diseases; paramedical service.

(ii) Food

Agro-industries; kitchen gardening; compost culture; crop and seed production; repair of farm implements; soil conservation and desert control; horticulture; animal husbandry and dairying; bee keeping; poultry farming; fish culture; bakery; confectionery; cooking.

(iii) Shelter

Pottery; Masonry work; Workshop practice (mechanical); Workshop practice (electrical); Workshop practice (electronics); Cane and bamboo work; House-craft; Blacksmithy; Foundry work; Carpet weaving.

(iv) Clothing

Production of cotton; wool; silk and other fibres; Weaving; Dressmaking; Knitting; Hosiery work; Embroidery work; Dress designing; Leatherwork.

(v) Cultural and Recreational

Making toys and puppets; Making and repairing musical instruments; Making games material; Printing; Bookbinding; Making stationery; Photography.

SUBSIDIARY CRAFTS/SERVICES

(i) Health and Hygiene

Cleanliness of the neighbourhood, well and pond and the disposal of garbage; construction of toilet facilities and compost pits; making tooth picks, tooth powder; soap; detergents; disinfectants; first aid boxes; construction of wastepaper-baskets; dustbins; garbage cans; brooms; brushes; cobweb cleaners; dusters; mops, etc.; detection of adulteration.

(ii) Food

Distribution of fertilisers and insecticides; processing and preservation of food; hydroponics; mushroom culture; khandisari, gur and candy making; catering; making jam; jelly, squashes, pickles, bari and papad, etc.; packing food; marketing.

(iii) Shelter

Home, village and town-planning.

Lac culture.

Renovation and effecting minor repairs in buildings, fittings, furniture and household articles. Decorating the home; gardening; surface decoration; interior decoration; construction of decorative pieces; plaster of Paris work; chalk and candle making; making limestone.

(iv) Clothing

Spinning of different fibres; Dyeing and printing; Repair of garments; Laundry work.

(v) Cultural and Recreational

Stagecraft; making costumes; holding exhibitions.
Further Suggestion on Socially Useful Productive Work:

Given below is an indication of how Socially Useful Productive Work can be combined with the 'sixth subject' to be offered in the ICSE examination:

Allied Subject Craft - Socially Useful Productive Work

1. Art  (i)  Pottery work
   (ii)  Sculpture: any medium
   (iii)  Weaving: any medium
   (iv)  Block printing, screen-printing, batik, tie and dye, etc. on any material.
   (v)  Embroidery.
   (vi)  Puppet or marionette making.
   (vii)  Printing from original wood or lino block.

2. Technical Drawing  (i)  Woodwork or Metal work.

Applications

3. Home Science  (i)  Laundry Work or Practical Cookery or Care of a House.

4. Cookery  (i)  Practical Cookery.

5. Fashion Designing  (i)  Needlework and Dressmaking.

6 Music    (a) Indian  (i)  Vocal, Instrumental, Tabla,

   (b) Western (i)  Piano or other instrument.

ASSESSMENT: (Classes IX and X)

Evaluation is an important aspect of planning and execution of the Socially Useful Productive Work and Community Service Programme in Schools. From the beginning of the programme each step needs evaluation. An illustrative guide to the areas of assessment and weightage to be given is contained in the following paragraphs.

1. Selection of Socially Useful Productive Work and Community Service.

Suggested lists of the Main Crafts/Services and Subsidiary Crafts/ Services have been given in the syllabus booklet. Candidates will be required to select one main craft and one subsidiary service OR one main service and one subsidiary craft per year of preparation for the examination, i.e. Class IX and X.

2. Internal Assessment

The Internal Assessments will consist of assessment in (a) Socially Useful Productive Work (b) Community Service. The work undertaken by the candidates during the two-year preparation period in each will be assessed and marked out of 50. From these assessments they will be placed in an order of merit list giving them marks out of a total of 100. The Council reserves the right to call for the records of the candidates' work.

3. Socially Useful Productive Work

(i) This will be taken to mean work practice in a main or subsidiary craft. In contrast to community service it implies the making of articles of social use or the practice of a skill.

(ii) The areas of assessment of Socially Useful Productive work may be classified as follows:

<table>
<thead>
<tr>
<th>Marks</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Preparation 05</td>
</tr>
<tr>
<td>(2)</td>
<td>Organisation 10</td>
</tr>
<tr>
<td>(3)</td>
<td>Skills 20</td>
</tr>
<tr>
<td>(4)</td>
<td>Research 10</td>
</tr>
<tr>
<td>(5)</td>
<td>Interest 05</td>
</tr>
</tbody>
</table>

(iii) Preparation: It is important to select a craft which is socially useful and within the candidates' capabilities. It may be necessary to visit localities where certain crafts are practiced and note details of the processes or methods involved.

(iv) Organisation: The candidates should be able to explain in writing, the tools, materials and processes required as well as draw up a timetable/ programme of work.

(v) Skills: The manual skills of the candidates should be assessed regularly and from the finished product(s) and include the candidates' abilities to follow processes/ methods of the craft.
(vi) Research: This is the candidates' ability to analyse a process or method and suggest/implement improvements and also to improvise wherever necessary.

(vii) Interest: This is an assessment of candidates' industriousness, constancy and conscientiousness with regard to the work undertaken. The candidates should be able to adhere to the timetable/programme of work drawn up by them.

(viii) Record Card: This should be kept for each candidate and the assessment of Socially Useful Productive Work entered in it. A specimen of the record card is given below for guidance.

(ix) Interpretation of Grades:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Standard</th>
<th>Points per grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Very Good</td>
<td>10</td>
</tr>
<tr>
<td>B</td>
<td>Good</td>
<td>8</td>
</tr>
<tr>
<td>C</td>
<td>Fair</td>
<td>6</td>
</tr>
<tr>
<td>D</td>
<td>Satisfactory</td>
<td>4</td>
</tr>
<tr>
<td>E</td>
<td>Unsatisfactory</td>
<td>2</td>
</tr>
</tbody>
</table>

NAME OF THE SCHOOL

Internal Assessment Card for Socially Useful Productive Work

Name of the Candidate: ________________________________________________________________

Craft/Skill: ________________________________________________________________

ASSESSMENT RECORD

<table>
<thead>
<tr>
<th>Date of Assessment</th>
<th>Areas of Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Preparation</td>
</tr>
<tr>
<td></td>
<td>Grade</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
<th>Grade</th>
<th>Points</th>
<th>Grade</th>
<th>Points</th>
<th>Grade</th>
<th>Points</th>
</tr>
</thead>
</table>

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4. Community Service:

(i) This will be taken to mean work done in the home, school and outside which is beneficial to the community.

(ii) The areas of assessment for community service may be as under:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Preparation</td>
<td>05</td>
</tr>
<tr>
<td>(2)</td>
<td>Organisation</td>
<td>10</td>
</tr>
<tr>
<td>(3)</td>
<td>Skills</td>
<td>20</td>
</tr>
<tr>
<td>(4)</td>
<td>Resourcefulness</td>
<td>10</td>
</tr>
<tr>
<td>(5)</td>
<td>Interest</td>
<td>05</td>
</tr>
</tbody>
</table>

(iii) Preparation: It is important to select a service that will be beneficial to the community. It may be necessary to form teams or squads and to select a leader.

(iv) Organisation is the knowledge of the tools, materials and methods/process by which the work can be done, and the ability to draw up a timetable or programme of work.

(v) Skills are the manipulative skills of doing the work. The quality of the candidates' work should be assessed.

(vi) Resourcefulness is the ability to complete the work in spite of problems and difficulties and to improvise wherever necessary.

(vii) Interest is the assessment of the candidates' constancy, industriousness and conscientiousness in doing the work and their abilities to adhere to the timetable or programme drawn up by them.

(viii) A record card on the lines suggested for Socially Useful Productive Work should be kept.

(ix) A practical scheme for day schools is given below:

(a) In the case of day schools, parents should be involved in making their children aware of their responsibilities in the home and to persons in the area in which they live. They should be encouraged to render Service in the home and to their neighbours. Such service may take the form of helping parents in cleaning the house, making the beds, assisting in the kitchen, cleaning the backyard, helping in the garden, visiting the sick, teaching a child or children in the neighbourhood, and so on.

Experiments should be tried in every school in which there are day scholars. Parents should be asked to give each child a job of work to do which will last between 20 minutes to half-an-hour each day.

(b) A diary should be kept for each child in which the parents enter each day:

(i) Nature of work;
(ii) Time allotted:
(iii) Remark of the parent;
(iv) Signature of the parent.

Thus, it will be possible for the school to ensure that children do at least three to three-and-half hours of Socially Useful Productive Work, per week.

(c) The number of hours as far as the Community Service (Social Service) is concerned, in the case of day scholars, will then be written the home and the neighbourhood and may rightly be termed 'Homework'. The remarks to be entered by the parent should be specified, so that they may be converted into grades.

(d) A suggested five points "remarks" scale is given below:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A -</td>
<td>Very good</td>
</tr>
<tr>
<td>B -</td>
<td>Good</td>
</tr>
<tr>
<td>C -</td>
<td>Fair</td>
</tr>
<tr>
<td>D -</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>E -</td>
<td>Unsatisfactory</td>
</tr>
</tbody>
</table>
(e) The class teacher should be required to enter the "grades" in a special register against each child. At the end of the month/term these grades may be converted into points thus:

<table>
<thead>
<tr>
<th>Standard</th>
<th>Grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Good</td>
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<td>4</td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>E</td>
<td>2</td>
</tr>
</tbody>
</table>

5. **Mark Sheets**

The Council will provide Mark Sheets to Heads of Schools to submit the result of each candidate in Socially Useful Productive Work and Community Service for Class X. The Head of the School will be responsible for the correct entering of the result of each candidate in term of grades A, B, C, D or E based in the following scale and standard:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Very Good</td>
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</tr>
<tr>
<td>E</td>
<td>Unsatisfactory</td>
</tr>
</tbody>
</table>

The completed mark sheets will have to be sent to the Council at least one month before the commencement of the written examination.
The aim of the section on Contemporary Studies is to provide to all students a comprehensive appreciation of the contemporary world and society and enable them to:

(i) Understand modern development.

(ii) Acquire skills that are necessary to withstand the interrelationships in society, politics and natural environment.

(iii) Appreciate the constraints and opportunities that enable a social order to evolve.

(iv) Participate in meaningful, interactive exposure to programmes that provide sensitization to poverty, exploitation and injustice.

_Note:_ Pupils are to be provided a general appreciation of the following topics with a view to cultivate and inculcate values promoting sustainable societal practices.

### CLASS IX

1. **Environment**
   
   Civic Sense, Health and Hygiene
   
   - Types of pollution and effective measures for prevention of pollution.
   - Conservation of natural resources.
   - Waste products management.
   - Respect for laws regulating community living.
   - Respect for other’s freedom.
   - Concern for public property.
   - Need for inculcating hygienic habits.
   - Importance of vaccination.

2. **Population Education**

   - Family planning, small family norms, gender equality. Female infanticide, abortion laws/euthanasia.

3. **The cultivation of Aesthetics**

   - Appreciation of art, music, poetry, literature and drama.
   - Cultivation of soft sensibilities and promotion of values that enhance appreciation of new living practices.

4. **Quality of Life**

   - Importance of effective use of time; hobbies, interests and importance of group activities.
   - Doing the right things and doing things right.
   - Cultivation of attitudes that enhance sustainable living practices.
   - Striving to achieve excellence.

5. **Culture, ‘Sanskars’ and Values**

   - Tenets of important religions in India supporting the cultivation of values and sustainable living practice (Two stories/parables each of the holy books).
   - Role of caste and religion in politics with reference to India, Japan and US.
   - Prejudice and Stereotyping - stereotyping mechanism, ways to overcome stereotyping.

6. **The Role of Family**

   - Definition of family.
   - Classification of family: nuclear, extended and joint.
   - Changing family values.
   - Collective impact of values acquired in the family on society.
1. Consolidating Nationhood
- Appreciation of the Fundamental Duties and Rights as provided in the Constitution.
- Citizen’s role in nation building.
- Role of taxes - direct and indirect.
- Concerns related to lack of participation in the national processes such as elections
- Awareness of consumer rights in order to avoid exploitation.

2. The Role of Media
- Press, film and television.
- Media as a vehicle of social change.
- Impact of media on young people.
- Press reporting: biases & censorship.
- Feasibility of restrictions.
- Sensationalization of news, exploitative practices.
- Press Council – its structure and role.

3. Cultural Diversity - India
- Study of some major tribes of India and a broad understanding of their social beliefs and practices.
- The need for sustaining cultural diversity.

4. India and the world
- India's positioning with respect to other countries.
- Partnerships between the countries of Asia and the Pacific and their influences on India and its people.

5. Globalisation
- Understanding of globalization as a worldwide aspiration linking humane values.
- Modernism and Internationalism.
- Global Broadcasting and journalism, role of news agencies, effects of the global reach of broadcasting, risk to cultural values due to bombardment by foreign-based media.

6. Concerns today
- Nuclear disarmament – CTBT.
- Human rights, Gia hypothesis, Malthus and Darwanism.
- Advantages and disadvantages to the consumer of a competitive market.
- Dehumanization due to technological advances.
- Advertising and its impact.
- Impact of society moving towards ‘quick fix’ solutions leading to corrupt practices.
- Underemployment and Unemployment.
- The ethical and moral impact of the Internet.
TECHNICAL DRAWING APPLICATIONS (65)

Aims:

1. To develop competence among the students to pursue technical courses like Engineering, Architecture, Draftsmanship Surveying and other professional courses.
2. To understand basic principles of instrumental drawing drawn to scale and to acquire basic skills in the use of traditional drafting methods which would also be helpful in understanding computer aided designs.
3. To acquire the basic knowledge in their applications in various fields.

CLASS IX

There will be one written paper of three hours duration carrying 100 marks and Internal Assessment of 100 marks.

The paper will be divided into two sections, Section I and Section II.

Section I (40 marks) shall consist of compulsory short answer questions chosen from the entire syllabus.

Section II (60 marks) shall contain questions which require longer answers. There will be a choice of questions.

THEORY – 100 Marks

1. Types of lines
   (i) Border lines.
   (ii) Outlines.
   (iii) Dashed/ Dotted lines.
   (iv) Centre lines.
   (v) Extension lines or Projection lines.
   (vi) Dimension lines.
   (vii) Construction lines.
   (viii) Cutting-Plane lines.
   (ix) Section or Hatching lines.
   (x) Short break lines.
   (xi) Long break lines.

   The names of different lines and their uses to be matched with the correct thickness and shade.

2. Dimensioning
   (i) Aligned system.
   (ii) Unidirectional System.

   (iii) Aligned system.
   (iv) Unidirectional System.

3. Lettering and Numbering
   Upright capitals and small, freehand, single stroke, as used in Engineering drawing, and between, the correct guide lines.

4. Sheet Layout
   Basic – draw border lines, title block with name, sheet number, title etc.

5. Geometrical Constructions
   (a) Bisector of line segment.
   (b) Division of a line segment into required number of parts/ proportional parts.
   (c) Perpendicular and parallel lines.
   (d) Bisection of an angle, trisection of a right angle/ straight angle.
   (e) Congruent angle.
   (f) To find the centre of an arc.
   (g) Regular polygons up to six sides with simple methods using T-square and setsquares.

   Point, Lines and Angles: Definitions of the various terms used in relation to, a point, different types of lines and different types of angles to be used only in construction.
   - Bisecting a line.
   - Drawing a perpendicular to a line from a point, in/above / away from the end of, the line.
   - Bisecting an angle when the lines meet.
   - Trisecting a right angle.
   - Making an angle equal to a given angle.
• **Draw parallel line to a given line touching given point away from the line by using correct instruments such as set squares/compasses.**

• **Draw parallel line to a given line at a given distance.**

• **Locating a point equally distant from two points, away from the line**

• **Dividing a straight line into any required number of given parts.**

• **Draw two lines, from two points outside a given straight line, to meet at a point in the line, making equal angles with it.**

• **Constructing angles of 90, 45, 22½, 135, 67½, 60, 120, 30, 52½, 105, 75, 37½ degrees.**

**Triangles:** Definition of a triangle, the terms (with their definitions) relating to the different parts of a triangle, classifying the different kinds of triangles, according to their sides / angles.

Construction of Triangles when the following is given:

• the base, altitude and one side.

• all three sides.

• the base angles and the altitude.

• the base and the base angles.

• the perimeter and the proportion of the sides.

• the base and the ratio of the angles.

• the perimeter and the base angles.

Construction of Isosceles Triangles when the following is given:

• the altitude and the base.

• the base and one side.

• a base angle and an equal side.

• the altitude and an equal side.

Construction of Right angled triangles when the following is given:

• the hypotenuse and the base.

• the hypotenuse and an acute angle.

• The base and height.

**Quadrilaterals:** Definitions of a quadrilateral / different kinds of quadrilaterals, e.g. a square, a rectangle, a rhombus and a trapezium to be used only in the construction of

• a rectangle: when the diagonal and one side is given or two sides are given.

• a square: when one side or the diagonal is given.

• a rhombus: when one side and one angle is given/when two diagonals are given.

• a trapezium: when the diagonal and the equal sides are given/when two parallel sides and distance between them is given.

**Polygons:** Definition of a polygon ( regular and irregular) and the terms relating to it only to be used in construction methods and Special construction methods of regular polygons (up to eight sides) when the following is given:

• the length of a side

• the length of sides and necessary angles are given.

**Circles and tangents:** Definition of a circle / tangent, and the different parts contained in a circle, e.g. center, circumference, diameter, radius, arc, chord, sector and segment. Concentric circles only to be used in construction methods for:

• finding the center of a circle.

• obtaining its circumference, radius given.

• obtaining the length of any given arc.

• drawing an arc /a circle to pass through 2 / 3 given points.

• drawing a tangent to an arc / a circle from a point in / outside the arc / circle.
• drawing two tangents, at a given inclination to each other, to a given circle.
• drawing a tangent to a circle, parallel to a given line.
• drawing a common exterior tangent to two circles of equal diameter.
• drawing a common exterior tangent to two circles of unequal diameter, when the circles touch / do not touch / cut one another.
• drawing a common interior tangent to two circles of equal / unequal diameter when the circles touch / do not touch one another.

6. Basic facility in Orthographic Projections

(a) Projection of points.
(b) Projection of lines (in 1st quadrant/3rd quadrant/contained by reference plane)
   (i) line parallel to both the reference planes.
   (ii) line parallel to one of the reference planes and perpendicular to the other plane.
   (iii) line inclined to one of the reference planes and parallel to the other plane.
   (iv) line inclined to both the reference planes.
   (v) To find the true length of the line from the given projections.
(c) Projections of Surfaces/ Areas: such as regular polygons and circular lamina (1st angle and 3rd angle).
   (i) surface perpendicular to both the reference planes.
   (ii) surface perpendicular to one of the reference planes and parallel to the other.
   (iii) Surface inclined to one of the surface planes and perpendicular to the other.
   (iv) Conversion of simple pictorial views into orthographic views (1st angle / 3rd angle method) ELEVATION (F.V) PLAN (T.V) END VIEW: LHS/RHS.

Its definition. The complete explanation with demonstration of viewing objects, placed within the First and Third quadrant (the planes of projections), and obtaining the different views, i.e. the front elevation, visible end elevations and plan, and drawing them, accordingly, using the, First angle or the Third angle, method of projection. Hidden end elevation to be excluded. Layout of drawing sheet, i.e. the Orthographic views (First / Third angle method), inserting the required projection lines, center lines, leader lines, dimension lines, dimensioning from the Pictorial (Isometric / Oblique view) of the object.

7. Isometric drawing

Copying the given isometric figure (simple and basic).

Their definition and their uses, the correct method of drawing them, along with the correct use of the appropriate, basic, drawing instruments.

The difference between the Isometric projection and the Isometric view.

• drawing the Isometric view / projection, of straight lined objects, showing isometric planes.
• drawing the isometric view of cylindrically shaped objects, e.g. round bars / pipes / washers.

8. Free hand sketching

Domestic items, appliances and tools, such as cup with a saucer, an electric bulb, a fountain pen with the cap removed, a tooth brush, a hammer (ball / claw pein), a wood saw, a hacksaw, a screwdriver, a spanner, pliers, chisel, tri-square, calipers (internal and external) a pair of scissors, a pair of compasses, divider, knife, water tap etc.

Draw free hand sketches of these tools keeping the proportion of various parts.

PART II – INTERNAL ASSESSMENT

Minimum fifteen drawing assignments to be done during the year as assigned by the teacher.
There will be one written paper of three hours duration carrying 100 marks and Internal Assessment of 100 marks.

The paper will be divided into two sections, Section I and Section II

Section I will consist of a number of questions covering Section A of the syllabus. The candidates are to attempt three questions out of five.

Section II will consist of questions covering Section B of the syllabus. The candidates are to attempt two questions out of three.

THEORY – 100 Marks

SECTION A

1. Geometrical Constructions based on Plane Geometry

   (i) Division of a line into equal or proportional parts: Construction of a triangle/ quadrilateral when its perimeter and the ratio of the lengths of its sides are given.
   (ii) Division of a circle into equal parts (4, 6, 8, 12) using set square or compasses.
   (iii) To find the length of an arc/circumference of a circle.
   (iv) An angle and a circle touching its sides.
   (v) A circle of given radius passing through two given points.
   (vi) An arc passing through three non-collinear points.
   (vii) A continuous arc passing through not more than 5 non-collinear points.
   (viii) A regular polygon (3, 4 5 6 sides) with special methods (side given).
   (ix) Construction of a regular octagon in a square (side of the square = distance between parallel sides of a octagon).
   (x) More than one polygon (sides 3, 4, 5, 6, 7, 8) on a common base on the same side/opposite sides.
   (xi) Inscribing/Circumscribing a circle on a regular polygon (3, 4, 5, 6 sides).
   (xii) Inscribe/Circumscribe a circle of given radius by a regular polygon up to six sides.
   (xiii) In a regular polygon to draw the same number of equal circles as the sides of the polygon each circle touching one /two sides of the polygon and two of the other circles externally.
   (xiv) Outside a regular polygon to draw the same number of equal circles as the sides of the polygon each touching one side of the polygon and two of the other circles externally.
   (xv) Regular hexagon and 3 equal circles inside it touching one side/ two sides of the hexagon and the other two circles externally.
   (xvi) A circle and (3, 4, 5, 6,) equal circles inside it touching internally and touching each other externally.
   (xvii) Tangents to a circle at a point on the circumference.
   (xviii) Direct common tangents/Transverse common tangents to two equal/unequal circles. Also to measure and record their lengths.
   (xix) Drawing (not more than three) circles touching each other externally and also touching two converging lines (radius of one of the circles is given).

2. Area constructions

   (i) Constructions based on the application of area theorems (area of polygons).
   (ii) Converting the given polygon into a triangle having equal/half/double the area of the polygon.
   (iii) Changing given triangles (2 or 3) into a single triangle having the area equal to the sum of the areas of the given triangles.

Methods for constructing:

- a scalene triangle / isosceles triangle / a right angled triangle equal to the area / half the area / twice the area of any given quadrilateral.
• a parallelogram equal in area to any given triangle.
• a triangle equal in area to the sum of any two / three given triangles.
• a triangle equal in area / half the area to any given regular pentagon / hexagon.
• a triangle of a given base / altitude, equal in area to another given triangle.
• a triangle equal in area to ½ or twice the area of any given triangle.
• a square equal in area to any given parallelogram / triangle / rectangle.
• a square, equal in area to any given regular pentagon / hexagon.

3. **Templates as an application** of geometrical constructions and other constructions such as:

   (i) Arc of a given radius touching a given line and passing through a given point.
   (ii) Arc of given radius touching two intersecting straight lines.
   (iii) Arc of given radius touching a given arc and a straight line.
   (iv) Arc of a given radius touching two given arcs (externally/internally).

   (To redraw the given figure and insert the dimensions).

   **Applying the construction methods, involving circles, tangential, circles / arcs / straight lines and points, for constructing TEMPLATES of various shapes.**

4. **Scales**

   (i) To find the R.F. (Representative Fraction) and the scale length from the given data by showing neat working.
   (ii) Construction of a plain scale/diagonal scale.
   (iii) Use of constructed scale in the preparation of field drawing scale diagram (Enough data to be provided).

   **Definition of R.F. formula. Finding the Representative Fraction (R. F.) and the Scale length by the given data by showing neat working/lettering. Construction of Plain and Diagonal Scales in different units of linear measurements, and marked and numbered accordingly. Transferring the required measurements, from the constructed scale, to create finished Scaled drawings, of: field drawings / templates / Orthographic projections / plane geometrical constructions.**

5. **Engineering Curves**

   An ellipse, a parabola

   **Engineering Curves (construction only) as used in manhole covers, arches, dams, monuments etc.**

   (i) **Ellipse: (major and minor axes given)**

   (a) by arcs of circles method.
   (b) by the concentric circles method.
   (c) by oblong method.

   (ii) **Parabola (base and axis given)**

   (a) by rectangle method.
   (b) by tangent method

6. **Solids**

   (i) Orthographic projections of right solids such as regular prisms and pyramids with bases as regular polygons up to six sides, cylinder and cone.

   (a) Axis perpendicular to one of the reference planes and parallel to the other.
   (b) Axis parallel to both the reference planes (prism/cylinder only).
   (c) Axis inclined to one of the reference planes and parallel to the other. Use of auxiliary plane may be included.(Auxiliary elevation and auxiliary plan).

   (ii) Development of surfaces of the right solids (Parallel and Radial).

   (iii) Determination of true length of line when inclined to both the reference planes e.g. slant edge of a pyramid.

   **Right Solids, such as, Prisms (triangular, square, pentagonal and hexagonal)**

   **Pyramids (triangular, square, pentagonal and hexagonal bases.), Cylinders and Cones:**
Simple word problems on

(i) **Orthographic projections of right solids.**

- with its axis, perpendicular to one plane, and, parallel to the other plane.
- with its axis, parallel to both planes.
- with its axis, parallel to one plane, and, inclined to the other plane.

(ii) **Parallel and Radial Development of lateral surfaces of right solids with axis parallel to H.P. and parallel to V.P.**

(iii) **Determination of true length of the slant edge of a pyramid when the slant edge is inclined to both H.P. and V.P.**

(iv) **Auxiliary views:**

Figure showing auxiliary inclined plane should be given with the word problem.

- Auxiliary elevation of right solid with axis parallel to H.P. and inclined to V.P.
- Auxiliary plan of a right solid with axis inclined to H.P. and parallel to V.P.

7. Oblique drawing

Conversion of given orthographic views to oblique view (circular parts in top view to be excluded). Circular parts only in one view either in front view or in the side view. The angle of inclination with the receding axis to be given

**SECTION B**

8. **Sections of right solids** (prism, pyramid, cylinder and cone)

(i) Sectional views of cut solids with axis perpendicular to H.P. and parallel to V.P.
   - V.T. (Vertical Trace) parallel to or inclined to H.P.
   - H.T. (Horizontal Trace) parallel/inclined to V.P. (Figure showing V.T and H.T should be given) Questions based on word problems should be excluded.

(ii) Axis parallel to both the reference planes (prism and cylinder only) with H.T or V.T of cutting plane shown in the figure.


(iv) Development of pipe joints as elbow joints, exhaust pipes etc. and the objects made of sheet metals in the shape of cylinders.

(v) True shape of a section.

(vi) Auxiliary views (A.F.V. /A.T.V.) of cut solids with axis perpendicular to H.P and parallel to V.P with

   (a) Auxiliary plane parallel to the cutting plane.

   (b) Auxiliary plane inclined to H.P at a given angle $\theta$.

**Sections of Right Solids, such as, Prisms, Cylinders, Pyramids and Cones.**

Sectional views, of cut / truncated solids,

- with its axis, perpendicular to the H.P. and parallel to the V.P., when the cutting plane is parallel / inclined to H.P. or to the V.P. (only one cutting plane to be expressed in the figure)
- with its axis, parallel to both planes (prisms and cylinders only), with not more than one cutting plane shown in the figure.

**Developments of the lateral surfaces of:**

- **Cut Solids / Truncated Solids (parallel and radial), such as, Prisms, Cylinders, Pyramids and Cones with one cutting plane shown in the figure.**

- **Cylindrical pipe joints, as used for constructing, Chimneys, Ventilators, exhaust pipes, etc., as application of development of lateral surfaces of cut/truncated cylinders with one/more than one cutting plane shown in the figure.**

**Auxiliary view, of cut / truncated solids such as prism / pyramids / cylinder / cone, when the axis is perpendicular to the H.P. and parallel to the V.P. with the Auxiliary plane;**
parallel to the cutting plane.

at an inclination to the H.P

Auxiliary plane should be shown in the figure.

The True Shape of the, cut / truncated, surface of right solids such as prism / pyramid / cylinder / cone when axis is perpendicular to H.P. and parallel to V.P.

9. Isometric Drawing (Use of scale to draw isometric drawing may be included. e.g. 2:1 or 1:2 only).

(a) Copy the given isometric figure.

(b) Conversion of the given orthographic view into isometric drawing.

(c) Isometric projection by constructing and making use of an isometric scale.

Isometric Drawing: In full scale and maybe in the scale of 2:1 or 1:2.

- Drawing the Isometric view, from a given, Isometric view.

- Drawing the Isometric view, by reading and visualizing the same, from the given Orthographic views.

- Drawing the Isometric projection from either a given pictorial view or the Orthographic views, by constructing and using the Isometric Scale.

10. Sectional Orthographic views (1st and 3rd angle methods)

(a) Conversion of given pictorial view (Isometric/oblique into sectional/half sectional orthographic views).

(b) Conversion of a given orthographic view into sectional/half sectional views and adding the missing view.

The Orthographic Projection, First and third, angle methods: (at least one of the views as sectional view).

- Drawing the Orthographic views / full sectional views / half-sectional views of an object shown in a given pictorial view: Isometric / Oblique with cutting plane / planes shown.

- Converting the given Orthographic view / views into Sectional views, full / half according to the Cutting plane line / lines marked in a given view / views.

- Dimensioning the Orthographic views showing the cutting plane, naming the views.

PART II- INTERNAL ASSESSMENT - 100 MARKS

1. To prepare a file containing minimum 15 drawing assignments. The drawing assignments should cover entire syllabus of class X. One / two assignments on each units of syllabus should be prepared on half imperial size drawing paper.

2. To make a three dimensional model with stiff cartridge paper / chart paper involving the application of the development of solids such as a prism / pyramid.

3. To make a model with thermocol involving the application of the true shape of the section of truncated solids such as a prism / pyramid / cylinder / cone.

EVALUATION

The assignments/project work is to be evaluated by the subject teacher and by an External Examiner. The External Examiner may be a teacher nominated by the Head of the school, who could be from the faculty, but not teaching the subject in the section/class.

The Internal Examiner and the External Examiner will assess the assignments independently.

Award of marks (100 marks)

Subject Teacher (Internal Examiner): 50 marks

External Examiner: 50 marks

The total marks obtained out of 100 are to be sent to the Council by the Head of the school.

The Head of the school will be responsible for the entry of the marks on the mark sheets provided by the Council.
# INTERNAL ASSESSMENT IN TECHNICAL DRAWING APPLICATIONS - GUIDELINES FOR MARKING WITH GRADES

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Preparation</th>
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<th>Process</th>
<th>Results</th>
<th>Presentation</th>
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<tbody>
<tr>
<td>Grade I</td>
<td>Follows instructions (written, oral, and diagrammatic) with understanding; modifies if needed. Familiarity with and safe use of apparatus, materials, techniques.</td>
<td>Analyses problem systematically. Recognises a number of variables and attempts to control them to build a logical plan of construction.</td>
<td>Comments upon, recognises use of instruments, degree of accuracy. Process is systematic.</td>
<td>Recognises and comments upon sources of error. Can deal with unexpected effects, suggesting modifications.</td>
<td>Presentation is accurate and good. Appropriate techniques are well used.</td>
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<tr>
<td>(4 marks)</td>
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<tr>
<td>Grade II</td>
<td>Follows instructions to perform experiment with step-by-step operations. Awareness of safety. Familiarity with apparatus, materials and techniques.</td>
<td>Specifies sequence of operation; gives reasons for any change in procedure.</td>
<td>Makes relevant procedural modification. No assistance is needed for understanding steps of constructions.</td>
<td>Draws qualitative conclusions to proceed with construction.</td>
<td>Presentation is adequate. Appropriate techniques are used.</td>
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<tr>
<td>(3 marks)</td>
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<tr>
<td>Grade III</td>
<td>Follows instructions to perform a single operation at a time. Safety awareness. Familiarity with apparatus &amp; materials.</td>
<td>Develops simple development strategy. Trial and error modifications made to proceed with the construction.</td>
<td>Detailed instructions not given.</td>
<td>Draws obvious qualitative conclusions as required in the process.</td>
<td>Presentation is okay, but disorganised in some places. Overwriting; rough work is untidy.</td>
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<td>(2 marks)</td>
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<tr>
<td>Grade IV</td>
<td>Follows some instructions to perform a single practical operation. Casual about Safety. Manages to use apparatus &amp; materials.</td>
<td>Struggles through the construction. Follows very simple techniques.</td>
<td>Tends to make mistakes in the following procedure.</td>
<td>Even when detailed format is provided, struggles or makes errors while processing the work.</td>
<td>Presentation is poor, disorganised but follows an acceptable sequence. Rough work missing or untidy.</td>
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<td>(1 mark)</td>
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<tr>
<td>Grade V</td>
<td>Not able to follow instructions or proceed with practical work without full assistance. Unaware of safety.</td>
<td>Cannot proceed with the development without help from time to time.</td>
<td>Even when format is given procedure is not understood.</td>
<td>Cannot process the work even with considerable help.</td>
<td>Presentation unacceptable; disorganised, untidy, poor. Rough work missing.</td>
</tr>
<tr>
<td>(0 marks)</td>
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</table>
YOGA (84)

Aims:
1. To enable young people to generate an understanding of the principles of yogic practices so as to improve quality of life.
2. To develop the ability to perform appropriate yogic asanas so as to improve physical and mental conditions and emotional equilibrium.
3. To help youngsters improve psychological functions, e.g. awareness, concentration, will power.
4. To foster co-operation amongst youth.
5. To develop appreciation for Indian cultural practices that support meaningful and relevant educational strategies.
6. To create opportunities to develop ideals, social skills and strengths.

CLASS IX

There will be two papers in the subject.

Paper I (Theory) will be of 2 hours duration carrying 100 marks. The paper will be divided into four sections as follows:

Section I: 40 marks
Section II: 20 marks
Section III: 20 marks
Section IV: 20 marks

Section I will be compulsory. Candidates will be required to attempt all the questions from this section. There will be no choice of questions.

Sections II, III and IV will have a choice of questions. Candidates will be required to attempt two questions from each section.

The above sections will correspond to the sections given in the syllabus.

Paper II (Internal Assessment) will carry 100 marks

PAPER I (Theory)

Section I: This section will deal with some of the important systems and aspects of the human body. Candidates should write brief notes, explain and illustrate their answers.

1. The Human Skeleton
   (i) The structure and function of the human skeleton, the tendons, ligaments and joints.
   (ii) The spine and spinal vertebrae.
   (iii) The importance of correct posture.

2. The Important Muscles
   (i) Identifying important muscles, muscle tissue.
   (ii) How muscles are attached, their role in movement.
   (iii) The role yoga plays in maintaining muscular health.

3. The Respiratory System
   (i) The structure and functions of the lungs and trachea.
   (ii) The role of the diaphragm, intercostal muscles, ribs and the sternum in breathing.
   (iii) How yoga cultures the breath and improves respiration.

4. The Digestive System
   (i) The structure and function of the digestive organs.
   (ii) The process whereby food is assimilated and transformed into energy and body tissue.
   (iii) An introduction to the concepts of Sattva, Rajas and Tamas as applied to food.

5. Yoga Therapy
   A brief introduction to the benefits of yoga asana practice as a means of removing discomfort and pain and restoring human health.
Section II: In this section candidates are expected to know about the lives and teachings of the following:

1. Valmiki
2. Vashishta
3. Vishvamitra
4. Kabir
5. Mirabai
6. Tukaram

Section III: The Ashtanga Yoga of Patanjali - Candidates are to write notes with suitable examples on the following:

1. Patanjali
   (i) His contributions to Yoga.
   (ii) Ashtanga Yoga as defined in the Yoga Sutras.
2. The Five Yamas
   Ahimsa, Satya, Asteya, Brahmacarya, Aparigraha.
3. The Five Niyamas
   Saucha, Santosha, Tapas, Svadhyaya, Ishwar Pranidhana.
4. Asanas
   Pranayama, Pratyahara, Dharana, Dhyana and Samadhi.

Section IV: Basic concepts of Yoga and some important slokas - The definition of Yoga, Guru and Shishya, the four Purushartha's, the four Ashramas, the four Margs - Jnana, Karma, Bhakti, Yoga Sadhana - Bhairanga, Antaranga, Antaratma.

The following three slokas should be known with their meaning:

\[
\text{Patanjali Yoga Sutra } II 29 \quad II 30 \quad II 32
\]
Refer to **Light on Yoga** by B. K. S. Iyengar for precise description of the asanas:

1. Vriksha asana
2. Garuda asana
3. Utthita Trikona asana
4. Utthita Parshva Kona asana
5. Virbhadra asana I
6. Virbhadra asana II
7. Prasarita Pada Uttana asana I
8. Pada Hasta asana
9. Adho Mukha Shvana asana
10. Parvata asana
11. Urdhva Prasarita Pada asana
12. Supta Vira asana
13. Ushtra asana
14. Dhanur asana
15. Marichi asana I (Twist only)
16. Bharadvaj asana I
17. Bharadvaj asana II
18. Mala asana (Squatting only)
19. Salambha Shirsha asana (1/2 minute)
20. Salambha Sarvanga asana I
21. Hala asana
22. Karna Pida asana
23. Supta Kona asana

**Reference Books:**

Please refer to the suggestions given at the end of the Class X syllabus.
There will two papers in the subject.

**Paper I (Theory)** will be of 2 hours duration carrying 100 marks. The paper will be divided into four sections as follows:

Section I: 40 marks
Section II: 20 marks
Section III: 20 marks
Section IV: 20 marks

**Section I** will be compulsory. Candidates will be required to attempt all the questions from this section. There will be no choice of questions.

**Sections II, III and IV** will have a choice of questions. Candidates will be required to attempt two questions from each section.

The above sections will correspond to the sections given in the syllabus.

**Paper II (Internal Assessment)** will carry 100 marks

**PAPER I (Theory)**

1. **The Nervous System**
   - (i) The brain, the voluntary and involuntary nerves.
   - (ii) The five Jnana Indriyas - eyes, ears, nose, tongue and the skin.
     - their role in sensory perception
   - (iii) The five karma Indriyas - arms, legs, tongue and larynx, organs of excretion and organs of reproduction.
     - their role in performing actions
   - (iv) Yoga and the health of the nervous system.

2. **The Excretory System**
   - (i) The organs of excretion.
   - (ii) The importance of the proper elimination of body wastes for maintaining health.

3. **The Circulatory System**
   - (i) The heart and blood vessels, blood and its composition.

   - (ii) The lymphatic system.
   - (iii) How Yoga improves circulation.

4. **The Important Endocrine Glands**
   - (i) The thyroid, pituitary, adrenal, pancreas and testes.
   - (ii) Their importance in growth and human health.
   - (iii) How Yoga helps to regulate functioning of endocrinal glands.

**Section II:** Candidates are to write notes on the lives and teachings of the following: Vyasa, Yagnavalkya, Chaitanya, Narsi Mehta, Jnaneshwar and Purandardas.

**Section III:** The Yoga Sutras of Patanjali.

1. **The Four Padas**
   - Samdhi pada, Sadhana pada, Vibhuti pada and Kaivalya pada.

2. **The Five Vrittis**
   - Pramana, Viparyaya, Vikalpa, Smriti and Nidra

3. **The Five Kleshas**
   - Avidya, Asmita, Raga, Dvesha and Abhinivesh.

4. **The Obstacles**
   - (i) Vyadhi, Styana, Samshana, Pramada, Alasya, Avirati, Bhranti, Darshana, Alabdhamukatva Anavasthi-tattva.
   - (ii) Dukha, Daurmansya, Angamejayatva and Shvasa Prakashva.

5. **The Virtues**
   - Maitri, Karuna, Mudita and Upeksha

6. **The Shudripus**
   - Kama, Krodha, Lobha, Moha, Mada and Matsarya.

7. **Abyasa and Vairagya**

   **Section IV:** Important Schools of Indian Philosophy and some Slokas.
1. **Orthodox Philosophies**
   Nyaya, Vaisheshika, Samkhya, Yoga, Mimamsa and Vedanta.

2. **Hetrodox Philosophies**
   Charvaka, Buddhism and Jainism.

3. **Five Important Slokas**
   Patanjali Yoga Sutra  1.2  1.33  1.14  2.28  2.3

**PAPER 2 (Internal Assessment)**

The practical work is to be divided into two sections as follows:

**Section A (40 marks):** Course Work - the course work will be assessed by the teacher on the basis of continuous assessment. The candidate will be assessed on the basis of his/her output in the following areas:

- (a) Degree of effort and progress in his/her yoga practise (judged through periodical tests).
- (b) Assisting the yoga therapy sessions.
  Improving his/her own health and well being through yoga therapy.
- (c) Participation in programmes.

**Section B (60 marks):** Practical Tests - There will be three tests in this section – to be assessed by an External Examiner.

**Test 1: Predetermined Asanas** (30 marks)

The candidates must perform any six asanas from those given below:

- Ardha Chandra asana, Parivritta Trikona asana, Chaturanga Danda asana, Shirsha asana, Sarvanga asana, Paschimottanasana, Urdhva Dhanur asana, Ardha Matsyandrasana asana.

**Test 2: Directed asanas** (20 marks)

The candidate must perform 4 or 5 asanas of the External Examiner's choice. (The examiner will select asanas from the Class X syllabus only). The External Examiner may test the pupil's ability to adapt and modify asanas.

**Test 3: Pupil's preference of asanas** (10 marks)

The candidate will perform two asanas of his/her choice.

**Important Notes:**

(a) Candidate must choose an asana from the Class X syllabus only.

(b) Candidate must not select an asana that he/she has already demonstrated in Test 1 and Test 2.

Refer to **Light on Yoga** by B. K. S. Iyengar for precise description of asanas:

1. Ardha Chandra asana
2. Parivritta Trikona asana
3. Pashva Uttana asana
4. Uttana asana
5. Chaturanga Danda asana
6. Urdhva Mukha Shvan asana
7. Matsya asana
8. Janu Shirsha asana
9. Upavista Kona asana (holding big toes, head up)
10. Ardha Nav asana
11. Paripoorna Nav asana
12. Paschimottana asana
13. Mrichi asana III
14. Ardha Matsyendra asana I
15. Salambha Shirsha asana (3 minutes)
16. Urdhva Dhanur asana
17. Salambha Sarvanga asana I
18. Hala asana
19. Setu Bandha Sarvanga asana

**Reference Books:**

1. Yoga for Children: by Rajiv & Swati Chanchani - U.B.S.P.D.
2. Light on Yoga: Yogacharya B.K.S. Iyengar - Harper Collins, India
3. For Yoga and Health use the Class IX and X Biology Book
4. Sages of India
5. Yoga Workbooks
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Knowledge of Asanas</th>
<th>Precision</th>
<th>Achievements (Ability to perform the classical pose)</th>
<th>Application (Interactive)</th>
<th>Presentation</th>
</tr>
</thead>
</table>
| Grade I (4 marks) | • Immediately presents the required asana  
• Knows the meaning of the name of the asana  
• Knows to which general group the asana belongs  
• Knows the benefits | • Firmness and alertness  
• Co-ordination  
• Attention to details  
• Moment-to-moment awareness | • Strength  
• Flexibility  
• Endurance (can hold the pose)  
• Stability | • Can adapt and modify as required by examiner.  
• Can clearly explain the purpose. | • Confidence  
• Angle of presentation and stance between poses  
• Co-operation and keenness  
• Grace and poise |
| Grade II (3 marks) | Fails to respond to any one of the above aspects. | Any one of the above aspects lacking. | Any one of the above aspects inadequate. | Very competent at one of the above but only partially manages the other. | Lack one of the above aspects. |
| Grade III (2 marks) | Fails to respond to two of the above requirements. | Any two aspects lacking. | Any two aspects inadequate. | Attempts both but is unclear | Lack two of the above aspects. |
| Grade IV (1 mark) | Fails to respond to three of the above requirements. | Any three aspects lacking. | Any three aspects inadequate. | Guesses both the application and purpose. | Lack three of the above aspects. |
| Grade V (0 marks) | Respond incorrectly to all four aspects. | Poor in all four aspects. | All four aspects inadequate. | Unable to apply or explain | All four aspects inadequate. |