**SYLLABUS FOR GENERAL POSTS – PANCHAYAT SECRETARY GRADE. VI DIGITAL ASSISTANT**

<table>
<thead>
<tr>
<th>Written examination (Objective Type)</th>
<th>No., of questions</th>
<th>Duration (minutes)</th>
<th>Maximum Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Part- A :</strong> General Studies, Mental Ability, Indian History, Polity, Economy, Geography etc., with special reference to Andhra Pradesh</td>
<td>50</td>
<td>50</td>
<td>50</td>
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<tr>
<td><strong>Part – B :</strong> Engineering Subjects</td>
<td>100</td>
<td>100</td>
<td>100</td>
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<td><strong>TOTAL</strong></td>
<td><strong>150</strong></td>
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**Note:** For each correct answer 1 mark will be awarded and each wrong answer will carry negative mark.

**SYLLABUS FOR EXIMANITION TO THE POST OF PANCHAYAT SECRETARY (GRADE–VI DIGITAL ASSISTANT) IN A.P. PANCHAYAT RAJ SUBORDINATE SERVICE**

**PART-A**
GENERAL STUDIES AND MENTAL ABILITY

1. General Mental ability and reasoning.
2. Quantitative aptitude including data interpretation.
3. General English.
5. General Science and its applications to the day to day life, Contemporary development in science and Technology and information Technology.
6. History & Culture of India with specific focus on AP.
7. Indian polity and governance: constitutional issues, 73/74th Amendments, public policy, reforms ad center – state relations with specific reference to Andhra Pradesh.

PART-B

ENGINEERING SUBJECTS

1. **Data Structures:** Introduction to Data Structures, Arrays, **Stacks** – Stack Operations, Applications of Stacks, **Queues** – Types of Queues, Operations on Queues, Applications, **Linked Lists:** Types of Lists, Operations on Linked Lists, Representation of Lists, Applications, **Trees:** Trees, Binary Trees Tree Traversals Techniques (Preorder, Inorder, Postorder), **Graphs:** Introduction, Types of Graphs, Graph Traversal Techniques (BFS & DFS), **Searching and Sorting:** Linear Search, Binary Search, Bubble Sort, Selection Sort, Insertion Sort, Quick Sort.

2. **Data Base Management Systems:** Introduction to DBMS, Characteristics, Data Models, Architecture, **Database Design** - Data Modeling, **Dependency** - Functional Dependencies, Lossless decomposition, Normal forms, **Working with Tables** - Data Definition Languages (DDL), Data Manipulation Language (DML), Functions and Grouping, Joins and Set operations.


5. **Number Systems and Digital circuits**: Number Systems, Conversion of Number system, Complements, Subtraction with complements, Alpha Numeric Representation, Fixed and Floating Point Representation, Character Representation **Digital Circuits** - Logic Gates, Boolean Algebra Theorems.

6. **Programming Languages**: Algorithm and its efficiency, Flowchart, **C Fundamentals** – Tokens, variables, expressions, Operators, Flow Control Statements, break and continue, goto statements, Loop Control Statements, Functions, recursion, storage classes, Structures and Unions, Pointers, Arrays, Dynamic Memory Allocation Functions, **OOPS Concepts** - Class, Objects, Data Encapsulation, Data Hiding, Inheritance, Polymorphism, Function Overloading, Operator Overloading, Type Conversions, Constructors and Destructors, friend functions, this pointer, Inheritance and its types.


8. **Circuit Theory, Electronic Devices and Circuits**:
   - Mesh Current and Node voltage analysis – Network theorems – Thevenin’s, Norton’s, Maximum Power Transfer, Superposition and Reciprocity theorems – Series and Parallel Resonance – Q Factor- Selectivity – Bandwidth – Linear wave shaping circuits.
   - **Semiconductor diodes** – varactor diode – zener diode - Clippers and Clampers – **Transistors** – FETs – UJT (characteristics only) – Power supplies – Rectifiers and Filters – HW, FW and Bridge type – Capacitor, Inductor, L-section filter – **Series and shunt regulators** – **Transistor amplifiers** – CE,CC and CB configurations – Biasing
techniques – RC coupled, Differential amplifiers – Feedback, Power and Tuned amplifiers

9. Communication Engineering:


10. D.C. Machines and A.C. machines:
   • **DC Machines, Batteries and Measuring Instruments:** DC Generators, EMF equation, Characteristics, Efficiency and Parallel operations. **DC Motors:** Principle of operations, Back EMF, Torque Equation, Types, armature reaction, Characteristics, Starters, Speed control, Losses, Efficiency **A.C. Circuits:** Fundamentals, Series and parallel R-L-C Circuits, Resonant circuits, Polyphase Circuits, **Transformer:** Single phase Transformer, Operation, Equivalent circuit, regulation, efficiency, Three phase Transformers, Auto Transformers.

   • **AC Machines:** Alternators: Operation, EMF equation, regulation, **Synchronous Motors:** Operation and performance, effects of Excitation, V – Curve and inverted V-curve, **Three phase induction Motors:** Principle of operation, Torque Equation, Slip torque characteristics, losses, efficiency, speed control

11. Power System generation and Protection:
   • **Generating Stations:** Working, Comparison of thermal, Hydel, Nuclear and Gas Power Stations, power factor correction and economy.
   • **Power station Protection:** Circuit Breakers – Types, Principles of operation and uses,
   • **Transmission and Distribution:** Types of supply systems, Transmission line parameters, inductance and capacitance, performance of short and medium lines, regulation, Ferranti effect, Corona, Basic Concepts of HVDC Transmission Advantage and disadvantages of HVDC Transmission

12. Electrical & Electronic Measuring Instruments:

• **Classification**, Principle of Operation of Moving coil, moving iron, Dynamometer type, Induction type meters, Instrument transformers, Induction type energy meter, PF meter, Frequency meter, Measurement of Resistance, Transducers and Sensors – Types, Thermistor, Thermocouple, Pressure Transducers and Strain gauges.