

<b>SUBJECT : MATHEMATICS</b>		<b>DAY-1</b>
<b>SESSION : AFTERNOON</b>		<b>TIME : 02.30 P.M. TO 03.50 P.M.</b>
<b>MAXIMUM MARKS</b>	<b>TOTAL DURATION</b>	<b>MAXIMUM TIME FOR ANSWERING</b>
<b>60</b>	<b>80 MINUTES</b>	<b>70 MINUTES</b>

<b>MENTION YOUR CET NUMBER</b>	<b>QUESTION BOOKLET DETAILS</b>	
	<b>VERSION CODE</b>	<b>SERIAL NUMBER</b>
	<b>A - 1</b>	<b>330849</b>

**DOs :**

1. Check whether the CET No. has been entered and shaded in the respective circles on the OMR answer sheet.
2. This Question Booklet is issued to you by the invigilator after the 2<sup>nd</sup> Bell i.e., after 2.30 p.m.
3. The Serial Number of this question booklet should be entered on the OMR answer sheet.
4. The Version Code of this question booklet should be entered on the OMR answer sheet and the respective circles should also be shaded completely.
5. Compulsorily sign at the bottom portion of the OMR answer sheet in the space provided.

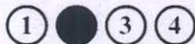
**DON'TS :**

1. **THE TIMING AND MARKS PRINTED ON THE OMR ANSWER SHEET SHOULD NOT BE DAMAGED / MUTILATED / SPOILED.**
2. **The 3<sup>rd</sup> Bell rings at 2.40 p.m., till then;**
  - Do not remove the paper seal present on the right hand side of this question booklet.
  - Do not look inside this question booklet.
  - Do not start answering on the OMR answer sheet.

**IMPORTANT INSTRUCTIONS TO CANDIDATES**

1. This question booklet contains 60 questions and each question will have one statement and four distracters. (Four different options / choices.)
2. After the 3<sup>rd</sup> Bell is rung at 2.40 p.m., remove the paper seal on the right hand side of this question booklet and check that this booklet does not have any unprinted or torn or missing pages or items etc.. if so, get it replaced by a complete test booklet. Read each item and start answering on the OMR answer sheet.
3. During the subsequent 70 minutes:
  - Read each question carefully.
  - Choose the correct answer from out of the four available distracters (options / choices) given under each question / statement.
  - **Completely darken / shade the relevant circle with a BLUE OR BLACK INK BALL POINT PEN against the question number on the OMR answer sheet.**

Correct Method of shading the circle on the OMR answer sheet is as shown below :



4. Please note that even a minute unintended ink dot on the OMR answer sheet will also be recognised and recorded by the scanner. Therefore, avoid multiple markings of any kind on the OMR answer sheet.
5. Use the space provided on each page of the question booklet for Rough Work. Do not use the OMR answer sheet for the same.
6. After the last bell is rung at 3.50 p.m., stop writing on the OMR answer sheet and affix your LEFT HAND THUMB IMPRESSION on the OMR answer sheet as per the instructions.
7. Hand over the OMR ANSWER SHEET to the room invigilator as it is.
8. After separating the top sheet (Our Copy), the invigilator will return the bottom sheet replica (Candidate's copy) to you to carry home for self-evaluation.
9. Preserve the replica of the OMR answer sheet for a minimum period of ONE year.

M



[Turn Over





1.  $f(x) = \frac{1}{2} - \tan\left(\frac{\pi x}{2}\right) \quad -1 < x < 1$

and  $g(x) = \sqrt{3 + 4x - 4x^2}$ .

Find domain of  $(f + g)$

(1)  $\left[\frac{-1}{2}, 1\right]$

(2)  $\left(\frac{-1}{2}, 1\right]$

(3)  $\left[-\frac{1}{2}, \frac{3}{2}\right]$

(4)  $(-1, 1)$

2. Write the set builder form  $A = \{-1, 1\}$

(1)  $A = \{x : x \text{ is a real number}\}$

(2)  $A = \{x : x \text{ is an integer}\}$

(3)  $A = \{x : x \text{ is a root of the equation } x^2 = 1\}$

(4)  $A = \{x : x \text{ is a root of the equation } x^2 + 1 = 0\}$

3. If the operation  $\oplus$  is defined by  $a \oplus b = a^2 + b^2$  for all real numbers 'a' and 'b', then  $(2 \oplus 3) \oplus 4 =$  \_\_\_\_\_

(1) 181

(2) 182

(3) 184

(4) 185

4. If  $Z = \frac{(\sqrt{3} + i)^3 (3i + 4)^2}{(8 + 6i)^2}$ , then  $|Z|$  is equal to

(1) 0

(2) 1

(3) 2

(4) 3

---

Space For Rough Work

5. If  $\alpha$  and  $\beta$  are the roots of  $x^2 - ax + b^2 = 0$ , then  $\alpha^2 + \beta^2$  is equal to \_\_\_\_\_

(1)  $a^2 - 2b^2$

(2)  $2a^2 - b^2$

(3)  $a^2 - b^2$

(4)  $a^2 + b^2$

6. If the 2<sup>nd</sup> and 5<sup>th</sup> terms of G.P. are 24 and 3 respectively, then the sum of 1<sup>st</sup> six terms is \_\_\_\_\_

(1)  $\frac{189}{2}$

(2)  $\frac{189}{5}$

(3)  $\frac{179}{2}$

(4)  $\frac{2}{189}$

7. The middle term of expansion of  $\left(\frac{10}{x} + \frac{x}{10}\right)^{10}$

(1)  ${}^7C_5$

(2)  ${}^8C_5$

(3)  ${}^9C_5$

(4)  ${}^{10}C_5$

8. If  $\begin{vmatrix} 2a & x_1 & y_1 \\ 2b & x_2 & y_2 \\ 2c & x_3 & y_3 \end{vmatrix} = \frac{abc}{2} \neq 0$ , then the area of the triangle whose vertices are  $\left(\frac{x_1}{a}, \frac{y_1}{a}\right)$ ,  $\left(\frac{x_2}{b}, \frac{y_2}{b}\right)$ ,  $\left(\frac{x_3}{c}, \frac{y_3}{c}\right)$  is

(1)  $\frac{1}{4} abc$

(2)  $\frac{1}{8} abc$

(3)  $\frac{1}{4}$

(4)  $\frac{1}{8}$

---

Space For Rough Work





