MATHEMATICS

DPP

DAILY PRACTICE PROBLEMS

DPP No. 16

Total Marks : 25

Max. Time : 26 min.

Topic : Quadratic Equation

Type of Questions		**M.M., Min.**
Comprehension (no negative marking) Q.1 to 3	**(3 marks, 3 min.)**	**[9, 9]**
Single choice Objective (no negative marking) Q.4,5,6,7	**(3 marks, 3 min.)**	**[12, 12]**
Subjective Questions (no negative marking) Q.8	**(4 marks, 5 min.)**	**[4, 5]**

COMPREHENSION (Q.No. 1 to 3)

Consider the equation $|x^2 - 2x - 3| = m$, $m \in R$

1. If the given equation has four solutions, then

(A) $m \in (0, \infty)$ (B) $m \in (-1, 3)$ (C) $m \in (0, 4)$ (D) none of these

2. If the given equation has three solutions, then

(A) $m \in (0, \infty)$ (B) $m \in \{4\}$ (C) $m \in (0, 4)$ (D) $m \in (-1, 3)$

3. If the given equation has two solutions, then

(A) $m \in [4, \infty)$ (B) $m \in (-1, 3)$ (C) $m \in (4, \infty) \cup \{0\}$ (D) $m = 0$

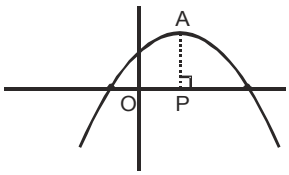
4. Let a, b, c be three roots of the equation $x^3 + x^2 - 333x - 1002 = 0$, then $(\Sigma (a^3) - 2\,\Sigma a)$ is equal to

(A) 2008 (B) 2000 (C) 2006 (D) 2002

5. Number of real solutions of the equation $x^2 + \left(\frac{x}{x-1}\right)^2 = 8$ is

(A) 3 (B) 4 (C) 6 (D) 0

6. If $y = ax^2 + bx + c$ represents the curve given in the figure and $b^2 = 2(b + 2ac)$, where $a \neq 0$ and AP = 3 units, then OP =



(A) $\frac{3}{2}$ (B) $\frac{3}{4}$ (C) 3 (D) 6

7. If $mx^2 - 9mx + 5m + 1 > 0$, $\forall\ x \in R$, then m lies in the interval

(A) $\left(-\frac{4}{61}, 0\right)$ (B) $\left[0, \frac{4}{61}\right)$ (C) $\left(\frac{4}{61}, \frac{61}{4}\right)$ (D) $\left(-\frac{61}{4}, 0\right)$

8. Find the range of values of 'a' such that $f(x) = \frac{ax^2 + 2(a+1)x + 9a + 4}{x^2 - 8x + 32}$ is always negative?

Answers Key

1. (C) **2.** (B) **3.** (C) **4.** (A) **5.** (A)

6. (C) **7.** (B) **8.** a $\left(-\infty, -\frac{1}{2}\right)$