MATHEMATICS

DPP

DAILY PRACTICE PROBLEMS

DPP No. 12

Total Marks : 30

Max. Time : 30 min.

Topics : Fundamentals of Mathematics, Quadratic Equation, Parabola

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

COMPREHENSION (For Q.No. 1 to 3)

The coordinates of the vertex of the parabola $f(x) = 2x^2 + px + q$ are $(-3, 1)$, then

1. The value of p is

(A) 12 (B) – 12 (C) 19 (D) – 19

2. The value of q is

(A) – 19 (B) 19 (C) – 12 (D) none of these

3. The parabola

(A) touches the x-axis (B) intersect the x-axis in two real and distinct points

(C) lies completely above the x-axis (D) lies completely below the x-axis

4. The solution set of the inequation $\left|\frac{1}{x} - 2\right| < 4$, is

(A) $(-\infty, -1/2)$ (B) $(1/6, \infty)$ (C) $(-1/2, 1/6)$ (D) $(-\infty, -1/2) \cup (1/6, \infty)$

5. Minimum value of $f(x) = 2x^2 - 4x + 5$ is

(A) 1 (B) – 1 (C) 11 (D) 3

6. The least integral value of ' m ' for which the expression $m x^2 - 4x + 3m + 1$ is positive for every $x \in R$ is :

(A) 1 (B) – 2 (C) – 1 (D) 2

7. The least integral value of 'a' for which the graphs $y = 2ax + 1$ and $y = (a - 6)x^2 - 2$ do not intersect

(A) – 6 (B) – 5 (C) 3 (D) 2

8. If the quadratic equations $x^2 - 5x + 4 = 0$ and $x^2 - 6x + k = 0$ have one common root, then 'k' is equal to

(A) 4 (B) 8 (C) 3 (D) 5

9. **Match the following**

Consider the parabola $f(x) = x^2 + kx + 4$

Column – I		**Column – II**	
(A)	Curve intersects the x-axis for	(p)	$k \in (-\infty, -4) \cup (4, \infty)$
(B)	Curve touches the x-axis for	(q)	$k \in (-4, 4)$
(C)	Curve neither intersect nor touches the x-axis for	(r)	$k \in \{-4, 4\}$
(D)	$f(x) > 0 \ \forall \ x \in R$ for		

Answers Key

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

6. (D) **7.** (B) **8.** (B)(D)

9. (A) $\rightarrow$ (p), (B) $\rightarrow$ (r), (C) $\rightarrow$ (q), (D) $\rightarrow$ (q)