MATHEMATICS

DPP

DAILY PRACTICE PROBLEMS

DPP No. 52

Total Marks : 27

Max. Time : 28 min.

Topics : Circle, Straight Lines

Type of Questions		M.M., Min.
Single choice Objective (no negative marking) Q.1,2,3,4	(3 marks, 3 min.)	[12, 12]
Assertion and Reason (no negative marking) Q.5	(3 marks, 3 min.)	[3, 3]
Subjective Questions (no negative marking) Q.6	(4 marks, 5 min.)	[4, 5]
Match the Following (no negative marking) Q.7	(8 marks, 8 min.)	[8, 8]

1. The equation of the image of the circle $x^2 + y^2 + 16x - 24y + 183 = 0$ in the line mirror $4x + 7y + 13 = 0$ is:

(A) $x^2 + y^2 + 32x - 4y + 235 = 0$ (B) $x^2 + y^2 + 32x + 4y - 235 = 0$

(C) $x^2 + y^2 + 32x - 4y - 235 = 0$ (D) $x^2 + y^2 + 32x + 4y + 235 = 0$

2. Find the maximum and minimum distance of the point $(2, -7)$ from the circle $x^2 + y^2 - 14x - 10y - 151 = 0$.

(A) {28, 2} (B) {2, 28} (C) {2, 13} (D) {15, 13}

3. The line $2x + 3y = 12$ meets the x-axis at A and the y-axis at B. The line through (5, 5) perpendicular to AB meets the x-axis, y-axis & the line AB at C, D, E respectively. If O is the origin, then the area of the region OCEB is :

(A) $\frac{20}{3}$ sq. units (B) $\frac{23}{3}$ sq. units (C) $\frac{26}{3}$ sq. units (D) $\frac{5\sqrt{52}}{9}$ sq. units

4. The algebraic sum of perpendicular distances from A (x_1, y_1), B (x_2, y_2) and C (x_3, y_3) to a variable line is zero, then all the such lines will always pass through

(A) the orthocentre of ΔABC (B) the centroid of ΔABC

(C) the circumcentre of ΔABC (D) the incentre of ΔABC

5. **Statement-1 :** Perpendicular from origin O to the line joining the points A $(c\cos\alpha, c\sin\alpha)$ and B $(c\cos\beta, c\sin\beta)$ divides it in the ratio 1 : 1

Statement-2 : Perpendicular from opposite vertex to the base of an isosceles triangle bisects it.

(A) Statement-1 is True, Statement-2 is True; Statement-2 is a correct explanation for Statement-1.

(B) Statement-1 is True, Statement-2 is True; Statement-2 is NOT a correct explanation for Statement-1

(C) Statement-1 is True, Statement-2 is False

(D) Statement-1 is False, Statement-2 is True

6. The sides of a rhombus are parallel to $y = 2x + 3$ and $2y = x + 5$. The diagonals of the rhombus intersect at (1, 2). If one vertex of the rhombus lies on the y-axis and possible values of the ordinates of this vertex are a & b, then find the value of (a + b).

7. **Match the column**

Match reflection of line $x + y + 1 = 0$, respect to the line given in the column-I, with lines in column-II.

Column - I		**Column - II**	
(A)	$2x + y + 1 = 0$	(p)	$x + 7y - 11 = 0$
(B)	$x - 2y + 1 = 0$	(q)	$7x + y + 1 = 0$
(C)	$x + 2y - 1 = 0$	(r)	$7x + y - 11 = 0$
(D)	$2x + y - 1 = 0$	(s)	$7x + y + 7 = 0$

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Answers Key

1. (D)

2. (A)

3. (B)

4. (B)

5. (A)

6. 4

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

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