**MATHEMATICS**

**DPP**
DAILY PRACTICE PROBLEMS

**DPP No. 57**

Total Marks : 23

Max. Time : 22 min.

Topics : Sequence & Series, Circle, Straight Lines

| Type of Questions | | M.M., Min. |
|---|---|---|
| Single choice Objective (no negative marking) Q.1 to 6 | (3 marks, 3 min.) | [18, 18] |
| Multiple choice objective (no negative marking) Q.7 | (5 marks, 4 min.) | [5, 4] |

1. If $\log 2$, $\log (2^x - 1)$ and $\log (2^x + 3)$ are in A.P., then x is equal to :
(A) 5/2　　　　　(B) $\log_2 5$　　　　　(C) $\log_3 2$　　　　　(D) 3/2

2. The first term of an infinite G. P. is the value of x for which the expression $\log_3 (3^x - 8) + x - 2$

   vanishes. If the common ratio of the G. P. is $\cos \dfrac{22\pi}{3}$, then the sum of the G. P. is :

   (A) 1　　　　　(B) 3/2　　　　　(C) 4/3　　　　　(D) none of these

3. $\displaystyle\sum_{r=1}^{n} \dfrac{r}{1.3.5.7........(2r+1)}$ is equal to

   (A) $\dfrac{1}{2}\left[1 - \dfrac{1}{1.3.5..........(2n+1)}\right]$　　　　　(B) $\dfrac{1}{4}\left[1 - \dfrac{1}{1.3.5..........(2n+1)}\right]$

   (C) $\dfrac{1}{4}\left[1 + \dfrac{1}{1.3.5..........(2n-1)}\right]$　　　　　(D) none of these

4. If the area of the isosceles right angle triangle BAC, right angled at A, is 50. Then the length of the median through A is
(A) 5　　　　　(B) $10\sqrt{2}$　　　　　(C) 25　　　　　(D) $5\sqrt{2}$

5. Length of the chord, along the x-axis, of the circle which is orthogonal to the three circles $x^2 + y^2 - 2x + 3y - 7 = 0$, $x^2 + y^2 + 5x - 5y + 9 = 0$ and $x^2 + y^2 + 7x - 9y + 29 = 0$, is
(A) $2\sqrt{17}$　　　　　(B) $2\sqrt{85}$　　　　　(C) $4\sqrt{85}$　　　　　(D) $4\sqrt{17}$

6. A circle touches the sides AB and AD of a rectangle ABCD at P and Q respectively and passes through the vertex C. If the distance of C from chord PQ is 5 units, then area of the rectangle is
(A) 45　　　　　(B) 25　　　　　(C) 50　　　　　(D) 75

7. The equation of the altitude of the $\Delta$ ABC whose vertices are A($-4$, 2) ; B(6, 5) and C(1, $-4$) can be:
(A) 10x + 3y + 2 = 0　　　　　(B) 5x + 9y + 2 = 0
(C) 6x $-$ 5y = 0　　　　　(D) 5x $-$ 6y = 0

# Answers Key

**1.** (B)

**2.** (C)

**3.** (A)

**4.** (D)

**5.** (D)

**6.** (B)

**7.** (A)(B)(D)