QUESTION PAPER 4

[Total Marks : 80

Time : 3 Hours]

Instructions As per Question Paper 1.

Section A

Answer the following as per instructions given : 24
[Q. nos. 1 to 24 – 1 mark each]

- **Fill in the blanks by selecting the proper alternatives from those given below each question : (Q. nos. 1 to 6)**

1. If $33x + 27y = 147$ and $27x + 33y = 153$, the $x + y =$ ..... .

A. 6 B. 5 C. – 5 D. – 6

2. If the equation $2x^2 - kx + k = 0$ has equal roots, then $k =$ ..... .

A. 0 B. 4 C. 8 D. 0 or 8

3. The 10th term of the AP $\sqrt{3}$, $\sqrt{12}$, $\sqrt{27}$, ... is ..... .

A. $\sqrt{363}$ B. $\sqrt{243}$

C. $\sqrt{300}$ D. $\sqrt{342}$

4. The distance of point P(m, n) from the origin is ..... .

A. $m^2 + n^2$ B. $\sqrt{m^2 + n^2}$

C. $m + n$ D. $\sqrt{m^2 - n^2}$

5. $\frac{\sin\theta \cdot \operatorname{cosec}\theta}{\cos\theta}$ = ...

A. $\tan\theta$ B. $\cot\theta$ C. $\sec\theta$ D. $\operatorname{cosec}\theta$

6. Some observation arranged in the ascending order as 12, 18, 27, $x + 3$, $x + 9$, 40, 42, 50. If median of the data is 35, then $x =$ ..... .

A. 35 B. 30 C. 29 D. 28

- **Fill in the blanks by selecting the proper answer from those given in the brackets to make the statements true : (Q. nos. 7 to 12)**

7. LCM (220, 60) = ... *(20, 660, 1320)*

8. The sum of zeroes of the polynomial $p(x) = x^2 + 2x - 899$ is ..... .
(2, – 2, – 899)

9. In the experiment of rolling a balanced die once, the probability of receiving a multiple of 3 is ..... . $\left(\frac{1}{2}, \frac{1}{3}, \frac{2}{3}\right)$

10. $\frac{2\tan 30°}{1+\tan^2 30°}$ = ... $\left(\sqrt{3}, \frac{1}{2}, \frac{\sqrt{3}}{2}\right)$

11. Point P lies in the exterior of a circle and two tangents from P touch the circle at A and B. If $\angle PAB = 45°$, then $\angle PBA =$ ..... . *(90°, 45°, 135°)*

12. If the mean of 6, 7, x, 8, y, 14 is 9, then $x + y =$ ..... . *(9, 19, 14)*

- **State whether the following statements are true or false : (Q. nos. 13 to 16)**

13. For any two positive integers a and b, HCF $(a, b) \times$ LCM $(a, b) = a \times b$.

14. The graph of the quadratic polynomial $p(x) = ax^2 + bx + c$ intersects the x-axis at two points at least.

15. The graph of $4x + 7y = 0$ is a line passing through origin.

16. A number is selected at random from the single digit natural number. The probability of that number being even is $\frac{1}{2}$.

- **Answer the following question in *one* sentence, word or figure : (Q. nos. 17 to 20)**

17. Find the sum of first 15 multiples of 12.

18. The common point of a circle and its tangent is known as what?

19. If P(A) : P$(\bar{A})$ = 8 : 7, find P$(\bar{A})$.

20. For a given data, if Z = 15 and $\bar{x} = 15$, then find M.

- **Match the following pairs correctly : (Q. nos. 21 to 24)**

'A'	'B'
21. Area of the base of a cylinder	(a) $3\pi r^2$
22. Curved surface area of a hemisphere	(b) πr^2
23. Length of a minor arc	(c) $2\pi r^2$
24. Area of a minor sector	(a) $\frac{\pi r^2 \theta}{360}$
	(b) $\frac{\pi r \theta}{360}$
	(c) $\frac{\pi r \theta}{180}$