This Question Paper contains 12 printed pages.
(Section - A, B, C & D)

Sl.No. 022671

18 (E)

(MARCH, 2024)

Time : 3 Hours] *[Maximum Marks : 80*

Instructions :

1) **Write in a clear legible handwriting.**
2) **This question paper has four Sections A, B, C & D and Question Numbers from 1 to 54.**
3) **All Sections are compulsory. Internal options are given.**
4) **The numbers to the right represent the marks of the question.**
5) **Draw neat diagrams wherever necessary.**
6) **New sections should be written in a new page. Write the answers in numerical order.**
7) **Calculator, digital watch or smart watch is not allowed.**

SECTION - A

- **Answer the following as per instruction given (Questions : 1 to 24) (1 mark each).** **[24]**
- **Choose the correct option from the question given below (Questions : 1 to 6). (1 mark each).**

1) For a given pair of linear equations in two variables, if $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$ then equation has _____ solution. **[1]**

(A) One (B) Two

(C) Three (D) No solution

2) If the two roots of quadratic equation $ax^2 + bx + c = 0\ (a \neq 0)$ are real and equal then _____. [1]

(A) $b^2 - 4ac < 0$ (B) $b^2 - 4ac = 0$

(C) $b^2 - 4ac > 0$ (D) $b^2 - 4ac \neq 0$

3) For the AP : 4, 10, 16, 22, ... common difference (d) is _____. [1]

(A) 8 (B) 5

(C) 6 (D) 12

4) The distance between the points (0, 5) and (–5, 0) is _____. [1]

(A) 5 (B) $5\sqrt{2}$

(C) $2\sqrt{5}$ (D) 10

5) $\sec^2\theta - \tan^2\theta =$ _____. [1]

(A) 0 (B) 1

(C) –1 (D) 2

6) For any data $\overline{X} = 25$ and $Z = 25$ then $M =$ _____. [1]

(A) 25 (B) –25

(C) 5 (D) –5

■ **Fill in the blanks with correct option as to make the given statement correct : (Questions : 7 to 12). (1 mark each).**

7) $3 + 2\sqrt{5}$ is a/an _____ number. (rational, irrational, negative integer) [1]

8) The sum of zeroes of quadratic polynomial $4x^2 - 3x - 7$ is _____. $\left(\frac{3}{4}, \frac{4}{3}, \frac{7}{3}\right)$ [1]

9) When a coin is tossed three times, the total number of possible outcomes is _____. (4, 6, 8) [1]

10) $\tan\theta \cdot \cot\theta =$ _____. (−1, 0, 1) [1]

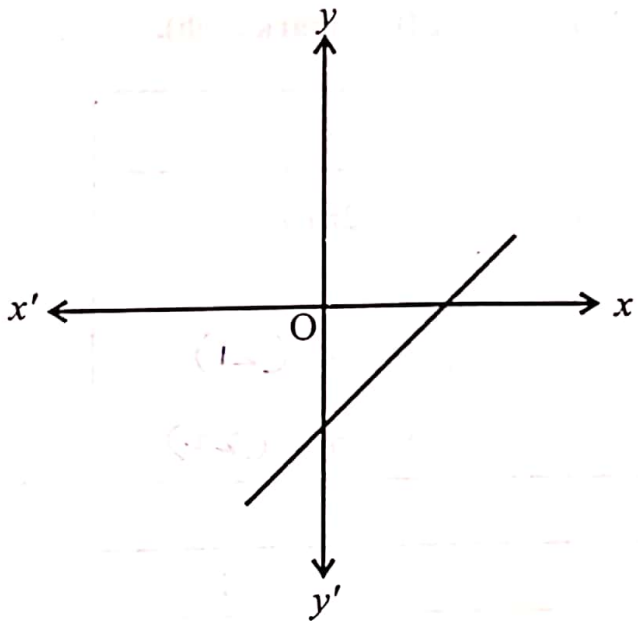
11) A circle can have _____ parallel tangents at the most. (1, 2, 3) [1]

12) Median of −2, −3, 0, 1, 3, 2, 7 is _____. (−2, 1, 3) [1]

■ **State True or False for statements given below : (Questions : 13 to 16). (1 mark each).**

13) H.C.F. of 17, 23 and 29 is 1. True [1]

14) Number of zeroes of $y = p(x)$ is 2 from figure given below. False [1]



15) If the pair of linear equations in two variables are $2x + 3y = 12$ and $3x + 2y = 18$ then $x + y = 5$. False [1]

16) The probability of an impossible event is zero (0). True [1]

■ **Answer the following in one sentence or one word or number (Questions : 17 to 20). (1 mark each).**

17) $a, 2a, 3a, 4a, \ldots$ is an Arithmetic Progression or not? Yes [1]

18) How many tangents can be drawn to a circle passing through a point lying inside the circle? Zero [1]

19) A die is thrown once. What is the probability of not getting number 6? $\frac{5}{6}$ [1]

20) Find the mean of First 11 Natural Numbers. 6 [1]

■ **Match the pairs : (Questions : 21 to 24). (1 mark each).** [4]

	A	B
21)	Base area of hemisphere	(a) $2\pi rh$
22)	Volume of a 5 rupee coin	(b) πr^2 (21)
		(c) $\pi r^2 h$ (22)

	A	B
23)	Length of an arc of a sector of angle θ	(a) πd (24)
24)	Circumference of a circle	(b) πr
		(c) $\frac{\pi r\theta}{180}$ (23)