

18 (E)

(MARCH/APRIL 2022)

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 55.
- 3) All Sections are compulsory. General 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 is not allowed.

SECTION - A

- Answer the following as per instruction given (Questions 1 to 24) (Each one mark).

[24]

- All questions are compulsory.

- Choose the correct option from the following (1 to 12):

- 1) For pair of linear equations $2x + 3y = 5$ and $4x + 6y - 10 = 0$. There are _____ solution. [1]

(A) Infinity

(B) Unique

(C) Zero

(D) None

2) The product of zeroes in $P(x) = x^2 - 3x + 2$ is _____. [1]

(A) 2 (B) $\frac{3}{2}$

(C) 1 (D) -2

3) The formula to find Discriminant of the quadratic equation is _____. [1]

(A) $D = b^2 + 4ac$ (B) $D = b^2 - 4ac$

(C) $D = b - 4ac$ (D) $D = c^2 - 4ab$

4) The formula to find n^{th} term of an A.P. is _____. [1]

(A) $a_n = a + (n-1)d$ (B) $a_n = a - (n-1)d$

(C) $a_n = a + (n+1)d$ (D) None

5) Formula to find area of circle is _____. [1]

(A) $\pi r l$ (B) $\frac{\pi r^2 \theta}{360^\circ}$

(C) πr^2 (D) $2\pi r$

6) Which of the following cannot be the probability of an event? [1]

(A) $\frac{2}{3}$ (B) 0.7

(C) 15% (D) -1.5

- 7) The probability of an event that is certain to happen is _____. [1]
- (A) 0 (B) -1
(C) 1 (D) $\frac{1}{2}$

- 8) The wickets taken by a bowler in 10 cricket matches are follows: [1]
2, 6, 4, 5, 0, 2, 1, 3, 2, 3
Then mode will be _____.
(A) 3 (B) 2
(C) 1 (D) 0

- 9) The H.C.F. of 15 and 35 is _____. [1]
- (A) 5 (B) 7
(C) 105 (D) 15

- 10) If α and β are the zeroes of the polynomial $P(x) = ax^2 + bx + c$ ($a \neq 0$) then
 $\alpha + \beta =$ _____. [1]

- (A) $-\frac{b}{a}$ (B) $\frac{b}{a}$
(C) $\frac{c}{a}$ (D) $-\frac{c}{a}$

For More Papers, Textbooks, Materials, Solution, etc
Click Here - www.VisionPapers.in

- 11) The distance of the point $P(x, y)$ from the origin is _____. [1]
- (A) $x^2 + y^2$ (B) $\sqrt{x^2 + y^2}$
(C) $x + y$ (D) None

12) If the perimeter and area of circle are numerically equal then radius of the circle will be _____.

- (A) 2 units (B) π units
(C) 4 units (D) 7 units

■ Write True or False for the following questions (13 to 18):

13) $\sqrt{5}$ is an irrational number. [1]

14) Number of zeroes of polynomial $P(x) = x^3 - x$ are 3. [1]

15) 2, 2, 2, 2, ---- is an Arithmetic Progression. [1]

16) The value of $\sin 60^\circ$ is $\frac{1}{2}$. [1]

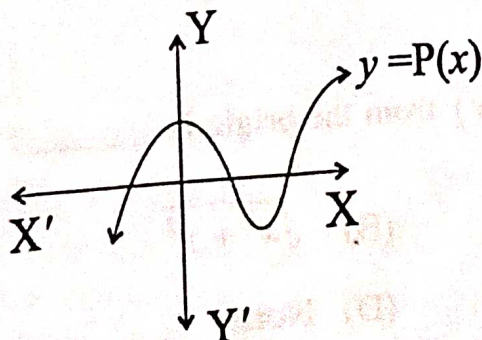
17) $Z = 2M - 3\bar{x}$ [1]

18) $P(E) + P(\bar{E}) = -1$ [1]

For More Papers, Textbooks, Materials, Solution, etc
Click Here - www.VisionPapers.in

■ Fill in the blanks (19 to 24):

19) In the given figure $y = P(x)$, the number of the zeroes of $P(x)$ are _____.
(2, 3, 4) [1]



- 20) $\sin^2 \theta + \cos^2 \theta = \underline{\hspace{2cm}}$. (0, 1, 2) [1]
- 21) The tangent of a circle touches it at point/points. (one, two, three) [1]
- 22) 2, k , 26 are three consecutive terms of an A.P. then $k = \underline{\hspace{2cm}}$. (12, 14, 20) [1]
- 23) Formula to find volume of a 5 rupee coin is . $\left(\pi r^2, \pi r^2 h, \frac{1}{3} \pi r^2 h \right)$ [1]
- 24) If $\sum f_i x_i = 245$ and $\sum f_i = 100$ then Mean $(\bar{x}) = \underline{\hspace{2cm}}$. (24.5, 2.45, 0.245) [1]

SECTION - B

For More Papers, Textbooks, Materials, Solution, etc
Click Here - www.VisionPapers.in

- Answer any 10 questions from following. (25 to 38) (Each 2 marks). [20]
- 25) In an Arithmetic Progression $a = 5$, $d = 3$, $a_n = 50$ then find "n". [2]
- 26) Find sum of A.P. 2, 7, 12, ----- to 10 terms. [2]
- 27) Find 30th term of A.P. 10, 7, 4, ----- [2]

- 28) The Base radius and height of cylinder are equal, if radius of cylinder is 7 cm find its volume. [2]
- 29) 2 cubes each of volume 64 cm^3 are joined end to end. Find the surface area of the resulting cuboid. [2]
- 30) A bag contains 3 red balls and 5 black balls. A ball drawn at random from the bag. What is the probability that the ball drawn is [2]
- i) red?
 - ii) not red?
- 31) Find the Quadratic Polynomial whose sum of zero and product of zero are -3 and 2 respectively. [2]
- 32) Find zeroes of Quadratic Polynomial $P(x) = x^2 + 7x + 10$. [2]
- 33) Find roots of $2x^2 - x + \frac{1}{8} = 0$ by factorization method. [2]
- 34) If $\sin A = \frac{3}{4}$ then find $\cos A$ and $\tan A$. [2]
- 35) Find the value of $2 \tan^2 45^\circ + \cos^2 30^\circ - \sin^2 60^\circ$. [2]

For More Papers, Textbooks, Materials, Solution, etc
Click Here - www.VisionPapers.in

36) The angle of elevation of the top of the tower from a point on the ground, which is 30 m away from the foot of the tower is 30° . Find the height of the tower. [2]

37) Find the distance between A(-5, 7) and B(-1, 3). [2]

38) For a grouped data, $l = 40$, $h = 15$, $f_1 = 7$, $f_0 = 3$ and $f_2 = 6$ then find mode. [2]

SECTION - C

■ Answer any 8 of the following. (39 to 50) (Each 3 marks). [24]

39) Find mean from following data: [3]

Class interval	10-25	25-40	40-55	55-70	70-85	85-100
Number of students	2	3	7	6	6	6

40) The following table shows age of the patients admitted in a hospital. Find mode. [3]

For More Papers, Textbooks, Materials, Solution, etc
Click Here - www.VisionPapers.in

Age	5-15	15-25	25-35	35-45	45-55	55-65
No. of patients	6	11	21	23	14	5

41) Prove that the lengths of tangents drawn from an external point to a circle are equal. [3]

42) Solve the linear pair of equations, [3]

$$\sqrt{2}x + \sqrt{3}y = 0$$

$$\sqrt{3}x - \sqrt{8}y = 0$$

43) Five years ago Bhavin was thrice as old as Vrutik, 10 years later Bhavin will be twice as old as Vrutik. How old are Bhavin and Vrutik? [3]

44) Find two consecutive odd positive integers sum of whose square is 290. [3]

45) In A.P. given $a_{12} = 37$, $d = 3$ find "a" and " S_{12} ". [3]

For More Papers, Textbooks, Materials, Solution, etc
Click Here - www.VisionPapers.in

46) Find the point on the X-axis which is equidistant from (2, -5) and (-2, 9). [3]

47) If the points A (6, 1), B (8, 2), C (9, 4) and D (P, 3) are the vertices of a parallelogram, taken in order. Find the value of 'P'. [3]

48) How many silver coins, 1.75 cm in diameter and of thickness 0.2 cm, must be melted to form a cuboid of dimensions 5.5 cm \times 10 cm \times 3.5 cm. [3]

49) One card is drawn from a well shuffled deck of 52 cards. Calculate the probability that the card will be [3]

- i) be an ace
- ii) not be an ace
- iii) red colour ace

50) A box contains 5 red marbles, 8 white marbles and 4 green marbles. One marble is taken out of the box random. What is the probability that marble will be [3]

- i) red
- ii) white
- iii) not green.

SECTION - D

For More Papers, Textbooks, Materials, Solution, etc
Click Here - www.VisionPapers.in

■ Solve any 3 in detail (51 to 55) (Each 4 marks). [12]

51) Prove that if a line is drawn parallel to one side of a triangle to intersect the other sides in distinct points, the other two sides are divided in the same ratio. [4]

52) Write Pythagoras theorem and prove it. [4]

- 53) Draw a line-segment of length 7.8 cm and divide it in the ratio 5:8. Measure two parts and write points of construction. [4]
- 54) Draw a circle of radius 6 cm. From a point 10 cm away from its centre, construct the pair of tangents to the circle and measure their length. Write steps of construction. [4]
- 55) The median of the following data is 525. Find the value of x and y if total frequency is 100. [4]

Class Interval	0-100	100-200	200-300	300-400	400-500	500-600	600-700	700-800	800-900	900-1000
Frequency	2	5	x	12	17	20	y	9	7	4

For More Papers, Textbooks, Materials, Solution, etc
Click Here - www.VisionPapers.in



38