Sample Paper 9

Time : 90 Minutes **Max Marks : 40**

General Instructions

1. *The question paper contains three parts A, B and C.*
2. *Section A consists of 20 quesions of 1 mark each. Any 16 quesitons are to be attempted.*
3. *Section B consists of 20 quersions of 1 mark each. Any 16 quesions are to be attempted.*
4. *Section C consists of 10 quesions based two Case Studies. Attempt any 8 questions.*
5. *There is no negative marking.*

SECTION-A

Section A consists of 20 questions of 1 mark each. Any 16 quesions are to be attempted.

1. The height of mountains is found out using the idea of indirect measurements which is based on the

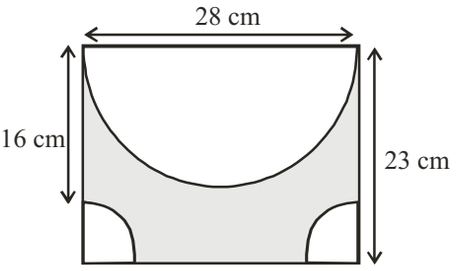
(a) principal of congruent figures (b) principal of similarity of figures

(c) principal of equality of figures (d) none of these

2. Find a quadratic polynomial, the sum and product of whose zeroes are – 3 and 2, respectively.

(a) $x^2 - 3x - 2$ (b) $x^2 + 3x + 2$ (c) $x^2 - 3x + 2$ (d) $x^2 + 3x - 2$

3. The figure given shows a rectangle with a semicircle and 2 identical quadrants inside it.



What is the shaded area of the figure?

(Use $\pi = \frac{22}{7}$)

(a) 363 cm^2 (b) 259 cm^2 (c) 305 cm^2 (d) 216 cm^2

4. A lady has 25 p and 50 p coins in her purse. If in all she has 40 coins totalling ₹12.50, find the number of coins of each type she has.

(a) 10, 15 (b) 30, 10 (c) 20, 30 (d) 10, 10

5. The points (a, a) (–a, –a) and $\left(-\sqrt{3}a, \sqrt{3}a\right)$ are the vertices of

(a) a scalene triangle (b) a right angled triangle

(c) an isosceles right angled triangle (d) an equilateral triangle

6. H.C.F. of pair of co-primes is _____.

(a) one (b) product of numbers (c) common factor (d) lowest common factor

7. What is the maximum value of $\frac{1}{\sec\theta}$?

(a) 0 (b) 1 (c) –1 (d) –2

8. If in an isosceles triangle '*a*' is the length of the base and '*b*' is the length of one of the equal side, then its area is equal to

(a) $a^2\sqrt{b^2-4b^2}$ (b) $\frac{a^2}{4}\left(\sqrt{4b}-a^2\right)$ (c) $\frac{a}{4}\sqrt{4b^2-a^2}$ (d) $\frac{1}{4}\sqrt{a^2+b^2}$

9. The zeroes of the polynomial are

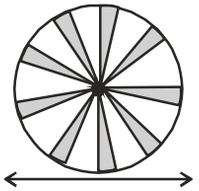
$p(x) = x^2 - 10x - 75$

(a) 5, – 15 (b) 5, 15 (c) 15, – 5 (d) – 5, – 15

10. The points (– 4, 0), (4, 0), (0, 3) are the vertices of a

(a) right triangle (b) isosceles triangle (c) equilateral triangle (d) scalene triangle

11. Arjun drew a figure as shown in figure, where a circle is divided into 18 equal parts. He then shaded some of the parts. (Take p = 3.14)



Find the total area the Arjun shaded.

(a) 25.12 cm^2 (b) 29.25 cm^2 (c) 36.4 cm^2 (d) 45.2 cm^2

12. L.C.M = _____ of highest powers of all the factors.

(a) product (d) difference (c) sum (d) none of these

13. When two dice are thrown, find the probability of getting same numbers on both dice.

(a) $\frac{2}{3}$ (b) $\frac{1}{6}$ (c) $\frac{1}{12}$ (d) $\frac{1}{9}$

14. The points A (9, 0), B (9, 6), C (– 9, 6) and D (– 9, 0) are the vertices of a

(a) square (b) rectangle (c) rhombus (d) trapezium

15. A man steadily goes 10 m due east and then 24 m due north. then his distance from the starting point is

(a) 28 m (b) 26 m (c) 25 m (d) 18 m

16. The perimeter of a rectangle is 40 cm. The ratio of its sides is 2 : 3. Find its length and breadth.

(a) l = 10 cm, b = 8 cm

(b) l = 12 cm, b = 18 cm

(c) l = 12 m, b = 8 m

(d) l = 40 m, b = 30m

17. If tan A = $\frac{3}{4}$ then, what is the value of sin A?

(a) $\frac{4}{3}$ (b) 1 (c) $\frac{3}{5}$ (d) 0

18. Which of the following numbers has the terminal decimal representation?

(a) $\frac{1}{7}$ (b) $\frac{1}{3}$ (c) $\frac{3}{5}$ (d) $\frac{17}{3}$

19. If A(2, 2), B(–4, –4) and C(5, –8) are the vertices of a triangle, then the length of the median through vertex C is

(a) $\sqrt{65}$ (b) $\sqrt{117}$ (c) $\sqrt{85}$ (d) $\sqrt{113}$

20. A bag contains 5 red balls and some blue balls. If the probability of drawing a blue ball is double that of a red ball, Find the number of blue balls in the bag.

(a) x = 10 (b) x = 12 (c) x = 9 (d) x = 8

SECTION-B

Section B consists of 20 questions of 1 mark each. Any 16 quesions are to be attempted.

21. Two coins are tossed simultaneously. Find the probability of getting atmost one head.

(a) $\frac{2}{3}$ (b) $\frac{1}{4}$ (c) $\frac{3}{4}$ (d) $\frac{1}{2}$

22. which of the following is true if following pair of equations has unique solution?

$3x - 2y = -8$

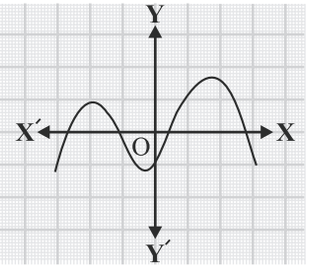
$(2m - 5)x + 7y - 6 = 0$

(a) $m = \frac{11}{4}$ (b) $m = -\frac{11}{4}$ (c) $m \neq -\frac{11}{4}$ (d) $m \neq \frac{11}{4}$

23. A 15 metres high tower casts a shadow 24 metres long at a certain time and at the same time, a telephone pole casts a shadow 16 metres long. Find the height of the telephone pole.

(a) 40 cm (b) 24 cm (c) 101 cm (d) 10 cm

24. The graph of y = p(x) is given in fig. below, for a polynomial p(x). The number of zeroes of p(x),is/are



(a) 4 (b) 3 (c) no zero (d) 2

25. Given that $\sin\theta + 2\cos\theta = 1$, then $2\sin\theta - \cos\theta =$

(a) 0 (b) 2 (c) 1 (d) None of these

26. What is the condition that a system of simultaneous equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ must satisfy to have exactly one solution?

(a) $\frac{a_1}{a_2} = \frac{b_1}{b_2}$ (b) $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$ (c) $\frac{a_1}{a_2} = \frac{c_1}{c_2}$ (d) $\frac{b_1}{b_2} = \frac{c_1}{c_2}$

27. The least number which is a perfect square and is divisible by each of 16, 20 and 24 is

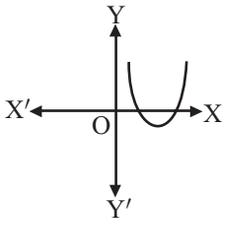
(a) 240 (b) 1600 (c) 2400 (d) 3600

28. If the end points of a diameter of a circle are A (–2, 3) and B (4, –5), then the coordinates of its centre are

(a) (2, –2) (b) (1, –1) (c) (–1, 1) (d) (–2, 2)

29. The graph of y = f(x) is shown in the figure.

What type of polynomial f(x) is?



(a) cubic (b) quadratic (c) linear (d) none of these

30. If $1 + \sin^2\theta = 3 \sin\theta \cos\theta$, then tan q can have values

(a) 4, 0 (b) $\frac{3}{4}, \frac{1}{3}$ (c) None of these (d) $1, \frac{1}{2}$

31. ABC is a right-angled triangle right angled at A. A circle is inscribed in it and the lengths of the two sides containing the right angle are 6 cm and 8 cm. Find the radius of the circle.

(a) 1.5 cm (b) 2.2 cm (c) 3 cm (d) 2 cm

32. If $(-1)^n + (-1)^{4n} = 0$, then n is

(a) any positive (b) any negative integer

(c) any odd natural number (d) any even natural number

33. A chord of a circle of radius 28 cm subtends an angle of 45° at the centre of the circle. Then the area of the minor segment is

(a) 30.35 cm^2 (b) 30.81 cm^2 (c) 30.45 cm^2 (d) 30.25cm^2

34. In what ratio is the line segment joining the points (3, 5) & (–4, 2) divided by y–axis?

(a) 3 : 2 (b) 3 : 4 (c) 2 : 3 (d) 4 : 3

35. What is a system of simultaneous equations called if its graph has intersecting lines?

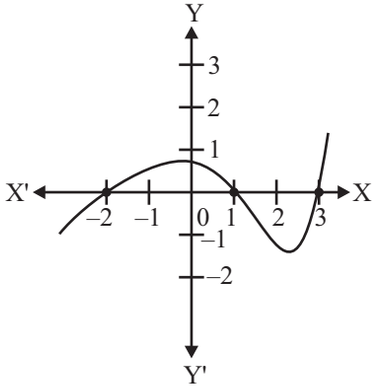
(a) Inconsistent system (b) Consistent system

(c) Dependent system (d) Independent system

36. $\frac{\tan\theta + \sec\theta - 1}{\tan\theta - \sec\theta + 1} =$

(a) $\frac{1+\sin\theta}{\cos\theta}$ (b) $\cos\theta + \sin\theta$ (c) $\frac{1+\cos\theta}{\sin\theta}$ (d) $\cos^2\theta - \sin^2\theta$

37. Choose the zeros of the polynomial whose graph is given.



(a) 1, –1, 2 (b) –2, 1, 3 (c) –2, 0, 3 (d) –2, 2, 3

38. In DABC, D is the mid point of BC and AE^ BC. If AC > AB, then

(a) $AB^2 = AD^2 - BC^2 + BC^2$

(b) $AB^2 = AD^2 - BC \cdot DE + \frac{1}{4}BC^2$

(c) $AD^2 = AB^2 + \frac{1}{4}BC^2 - BC \cdot DE$

(d) All of the above

39. Find the H.C.F. of

$2^3 \times 3^2 \times 5 \times 7^4$, $2^2 \times 3^5 \times 5^2 \times 7^3$, $2^3 \times 5^3 \times 7^2$.

(a) 980 (b) 890 (c) 900 (d) 809

40. The perimeter of a sector of a circle with central angle 90° is 25 cm. Then the area of the minor segment of the circle is.

(a) 14 cm^2 (b) 16 cm^2 (c) 18 cm2
(d) 24 cm^2

SECTION-C

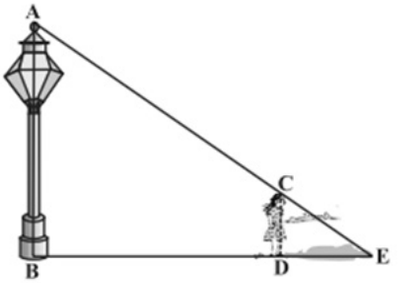
Case Study Based Questions:

Section C consists of 10 quesions of 1 mark each. Any 8 quesions are to be attempted.

Q 41. - Q 45 are based on case study-I

Case Study-I

A girl of height 90 cm is walking away from the base of a lamp-post at a speed of 1.2 m/s. If the lamp is 3.6 m above the ground .



Answer the following questions.

41. The length of her shadow after 4 seconds is :

(a) 4.8 m (b) 1.6 m (c) 4 m (d) 2 m

42. Distance travel by girl after 4 second is :

(a) 4.8 m (b) 1.6 m (c) 4 m (d) 3 m

43. Distance between their tops is :

(a) 4 m (b) 1.8 m (c) 5.4 m (d) 3.2 m

44. Similarity criterion of DABE and DCDE is :

(a) AA (b) SSS (c) SAS (d) ASA

45. Which of the following is true ?

(a) $\angle B = \angle C$ (b) $\angle B = \angle D$ (c) $\angle A = \angle D$ (d) $\angle A = 90°$

Q 46 - Q 50 are based on case study-II

Case Study-II

A die has two faces each with number '1', three faces each with number '2' and one face with number '3'. Die is rolled once.

46. The probability of obtaining the number 2 is

(a) $\frac{1}{2}$ (b) $\frac{1}{6}$ (c) $\frac{1}{3}$ (d) None of these

47. The probability of getting the number 1 or 3 is

(a) $\frac{1}{3}$ (b) $\frac{1}{6}$ (c) $\frac{1}{2}$ (d) None of these

48. The probability of not getting the number 3 is

(a) $\frac{1}{6}$ (b) $\frac{5}{6}$ (c) $\frac{1}{2}$ (d) None of these

49. Probability of getting prime number

(a) $\frac{1}{6}$ (b) $\frac{1}{2}$ (c) $\frac{1}{3}$ (d) 1

50. Probability of getting odd number

(a) $\frac{1}{2}$ (b) $\frac{1}{6}$ (c) $\frac{1}{3}$ (d) 0