OPJINDAL SCHOOL PATRATU

CLASS - IX MODEL QUESTION ANNUAL EXAMINATION 2024-25

FULL MARKS 80

SUBJECT- MATHS TIME -3 HOURS

SECTION A (MCQ Each of 1 marks)

1. The simplest form of $0.5\overline{4}$ is ?

(a) $\frac{27}{50}$ (b) $\frac{6}{11}$ (c) $\frac{4}{7}$ (d) $\frac{49}{90}$

2. An irrational number between 5 and 6 is

(a) $\frac{5+6}{2}$ (b) $\sqrt{5+6}$ (c) $\sqrt{5\times 6}$ (d) 30

3. If P(x)=x+4 , then P(x) +P(-x) =?

(a) 0 (b) 8 (c) 2x (d) -8

4. The zero of the polynomial P(x)= $2x^2$+5x- 3 are

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

5. If a+b+c=0 then ($\frac{a^2}{bc}+\frac{b^2}{ca}+\frac{c^2}{ab}$) = ?

(a) 1 (b) 0 (c) -1 (d) 3

6. The point P(-5,3) lies in

(a) quadrant I (b) quadrant II (C) quadrant III (d) quadrant IV

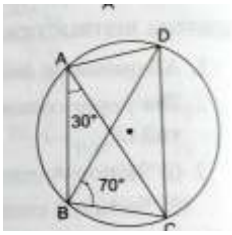
7. A chord of length 16 cm is drawn in a circle of radius 10 cm. Then the distance of the chord from the centre of circle ?

(a) 4 cm (b) 5 cm (c) 6 cm (d) 8 cm

8. A cone and a hemisphere have equal bases and equal volumes , then the ratio of their height is ?

(a) 1:2 (b) 2:1 (c) 4:1 (d) $\sqrt{2}$:1

9. In the following figure the measure of angle BCD is



. (a) 100° (b) 80° (c) 60° (d) 50°

10. In a triangle the angle opposite to larger side is

(a) smaller (b) equal (c) greater (d) none of these

11. The sum of interior angles of a quadrilateral is equal to

(a) two right angles (c) three right angles (c) four right angles (d) none of these

12. In Δ ABC ,if <A=<B+<C then the measure of < A is equal to

(a) 60° (b) 90° (c) 180 ° (d) none of these

13. Each of the two equal sides of an isosceles right triangle is 10 cm long , then its area is ?

(a) 5√10 cm² (b) 50 cm² (c) $10\sqrt{3}$ cm² (d) 75 cm²

14. Each side of an equilateral triangle is 10 cm long , then height of the triangle is ?

(a) $10\sqrt{3}$ cm (b) $5\sqrt{3}$ cm (c) $10\sqrt{2}$ cm (d) 5 cm

15. The difference between the semi perimeter and the sides of a triangle are 8 cm,7 cm and 5 cm respectively. The area of triangle is ?

(a) $20\sqrt{7}$ cm² (b) $10\sqrt{14}$ cm² (c) $20\sqrt{14}$ cm² (d) 140 cm²

16. Which of the following points does not lie on the line y =3x+4 ?

(a) (1,7) (b) (2,10) (c) (-1,1) (d) (4,12)

17. An exterior angle of a triangle is 110° and one of its interior opposite angle is 45° , then the other opposite angle is ?

(a) 45° (b) 65° (c) 25° (d) 135°

18. The sides AB and AC of a ΔABC have been produced to D and E . The bisector of <CBD and <BCE meet at O , If < A = 40°, then <BOC is ?

(a) 90° (b)100° (c) 110° (d) 70°

19. Using remainder theorem find remainder when $x^3 - 6x^2 + 9x + 3$ is divided by (x- 1) ?

(a) 8 (b) 7 (c) 9 (d) 11

20. If (x -1) is a factor ($2x^3+9x^2+x+k$) , then value of k is ?

(a) 12 (b) -12 (c) -8 (d) 8

SECTION B (each of 2 marks)

21. Divide P(x) by g(x) where P(x)= $x+3x^2-1$ and g(x)=1+x . Find quotient and remainder?

OR For what value of k is the polynomial $2x^3 + kx^2 + 11x + k + 3$ exactly divisible by (2x-1) ?

22. In a ΔABC ,if AB=AC and <B=65° then find <C and <A ?

23. Find the value of k if x=3 ,y=1 is a solution of the equation 2x+5y=k ?

24. Prove that each angle of an equilateral triangle is 60° ?

25. Draw the graph of y=2x+3 OR Rationalise $\frac{1}{3+\sqrt{2}}$

SECTION C (EACH OF 3 MARKS)

26. The daily pocket expenses of 206 students in a school are given below ?

Pocket expenses	0 -5	5 - 10	10 -15	15 -20	20 -25	25 -30	30 -35	35 -40
Number of students	10	16	30	42	50	30	16	12

Construct a histogram and frequency polygon representing the above data .

OR If x = $\frac{1}{3+\sqrt{8}}$ then find (1) x+$\frac{1}{x}$? (2) x² - $\frac{1}{x^2}$

27. Two adjacent angles on a straight line are in the ratio 5:4. Find the measure of each of these angles ?

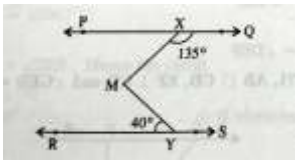
28. Factorise $15x^2$- x -28

OR If P(x) =$3x^3$+$4x^2$-5x+8 ,Find P(-2)

29. Prove that the sum of all angles of a triangle is 180°

30. AD is an altitude of an isosceles triangle ABC in which AB=AC .Then show that (i) AD bisects BC (ii) AD bisects <A

31. . In given figure PQ//RS and <QXM =135° ,<MYR=40° then find the measure of <XMY



SECTION D (EACH OF 5 MARKS)

32. Prove that the sum of either pair of opposite angles of a cyclic quadrilateral is 180° ?.

OR State and prove the angle subtended theorem ?.

33. If the sides of a right triangle are 6 cm, 8 cm and 10 cm . It is revolved along the side 6 cm , then calculate volume of so formed solid ?

34. Using factors theorem factorise x^3+13x^2+32x+20 ?

35. If the radius of a sphere is decreased by 25%, calculate the percentage decrease of its curved surface area ?

OR The sides AB and AC of Δ ABC are produced to D and E respectively .If the bisector BO and CO of <CBD and < BCE respectively meet at O ,then prove that < BOC=90°- $\frac{1}{2}$<BAC

SECTION E (each of 4 marks) . (CASE STUDY

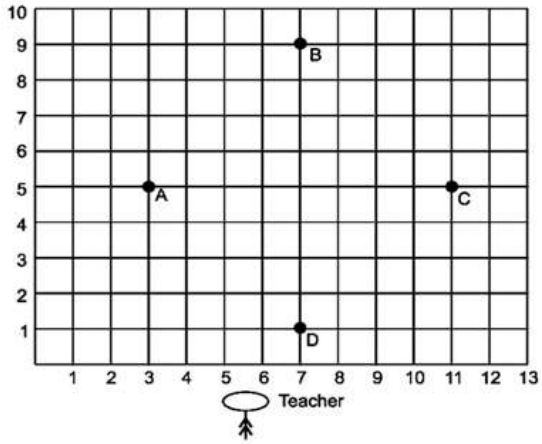
36. Students of a school are standing in rows and columns in their playground for a drill practice .

(1) Find the coordinate of the point A, B and C ?

(2) Find the distance between A and D ?

(3) Find the distance between A and B ?

(4) Find the coordinate of point D ?



37. Prime Minister's National Relief Fund (also called PMNRF in short) is the fund raised to provide support for people affected by natural and man-made disasters. Natural disasters that are covered under this include flood, cyclone, earthquake etc. Man-made disasters that are included are major accidents, acid attacks, riots, etc.

Two friends Sita and Gita, together contributed Rs. 200 towards Prime Minister's Relief Fund. Answer the following :

(1) Which out of the following is not the linear equation in two variables ?

(i) $2x = 3$ **(iii) $x^2 + x = 1$**
(ii) $4 = 5x - 4y$ **(iv) $x - \sqrt{2}y = 3$**

(2) How to represent the above situation in linear equations in two variables ?

(i) $2x + y = 200$ **(ii) $x + y = 200$**
(iii) $200x = y$ **(iv) $200 + x = y$**

(3) If Sita contributed Rs. 76, then how much was contributed by Gita ?

(i) Rs. 120 **(ii) Rs. 123**
(iii) Rs. 124 **(iv) Rs. 125**

(4) If both contributed equally, then how much is contributed by each?

(i) Rs. 50, Rs. 150 **(ii) Rs. 100, Rs. 100**
(iii) Rs. 50, Rs. 50 **(iv) Rs. 120, Rs. 120**

38. If, $F=\frac{9}{5}C+32$

(i) Draw the graph of above equation

(ii) If temperature is 95 F, what is temperature in degree Celsius.

(iii) If temperature is 30° ,what is temperature in Fahrenheit ?

NOTE– GRAPH PAPER IS TO BE PROVIDED