MODEL QUESTION PAPER - 3

I. Four Alternatives are given for each of the following questions/ incomplete statements. Choose the alternative and write the complete answer along with its letter of alphabet. 8X1=8

1. In the pair of linear equations $a_1x + b_1y + c_1 = 0$ and a_2x+b_2y+c_2=0

   if $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$ then

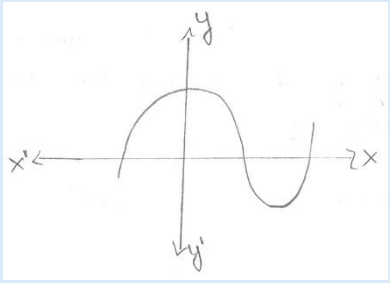
   A. The equations have unique solutions B. The equations have no solutions

   C. The equations have infinitely many solutions D. The equations have four solutions

2. In an arithmetic progression if a_n=2n+1 then the common difference is

   A. 0 B. 1 C. 2 D. 3

3. In the figure a polynomial y = p(x) is represented through a graph the Number of Zeroes of the polynomial is



   A. 4 B. 2 C. 2 D. 3

4. If Cos A = $\frac{24}{25}$ then the value of Sec A is

   A.$\frac{25}{24}$ B. $\frac{24}{25}$ C.$\frac{7}{25}$ D.$\frac{25}{7}$

5. The ratio of Corresponding sides of two similar triangles are in the ratio 3:5, then the Ratio between their Medians is

   A. 3:5 B. 9:5 C. 25:9 D.5:3

6. A straight line passing through any two points on a circle is

   A. a tangent B. a radius C. a secant D. a transversal

7. The length of an arc of a sector of a circle of radius r and angle θ is

   A. $\frac{\theta}{360}$x $\pi\ r^2$ B. $\frac{\theta}{360}$x2πr^2 C. $\frac{\theta}{180}$ x2πr d. $\frac{\theta}{360}$x2πr

8. The height and radius of cylinder and cone is equal, if volume of cylinder 360cm^3 then volume of cone is

   A.120cm^3 B.180cm^3 C.160cm^3 D.1080cm^3

II. Answer the following Questions: 8X1=8

9. Find the H C F of 25 and 7 by using Euclid s division lemma

10. Find the Sum and product of zeroes of P(x)=x^2+3x+2

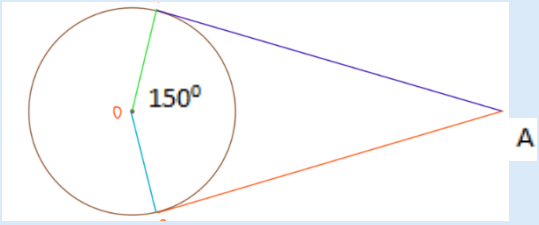
11. Find the value of sin 30° + cos60° - tan 45°

12. Find the coordinate of the midpoint of line joining the points [2,3] and [4.7]

13. State "Basic proportionality theorem"

14. In the given figure AB and AC are the two-tangent drawn from the point A to the circle with center O, if ∠BOC=150° then find ∠BAC

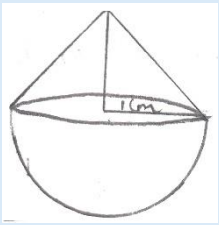
B



C

15. The one root of Quadratic Equation [x+4] [x-3] =0 is-4 then find the other root

16. Find the Volume of Solid. If the height of cone is 1cm and radius of hemisphere 1cm.



III. Answer the following questions: 8X2=16

17. Solve 2x+y=7
3x-y=8

18. Find the sum of 2+5+8+ - - -to 10 terms using formula.

19. Find the Remainder and Quotient of dividing P[x]=x^5-4x^3+x^2+3x+1 by g(x)=x^3-3x+1.

20. Find Discriminant of the Equation the 2x^2-5x-1=0 and Hence Write the nature of the roots.

21. If one Zero of the polynomial P(x) =x^2-6x+K is twice the other then find the value of K

OR

Find the polynomial which is to be added to P(x) $= x^4 + 2x^3 - 2x^2$+x-1. So that the resulting polynomial is Exactly divisible by g(x)=x^2+2x- 3.

22. Find the Distance between the points [2, -4] and [7,8]

OR

Find the co-ordinates of the point which divides the line Joining the points [4, -3]and [8,5]in the Ratio 3:1

23. Find the value of 'K' if the points A [2,3], B [4,k], C [6,-3] are collinear

24. Draw a pair of tangent to a circle of Radius 4cm. Which are inclined to each other at the angle of 60°

IV. Answer the following questions: 9X3=27

25. Prove that $\sqrt{3}$ is an irrational number.

26. Difference between the two numbers is 5 and difference between their reciprocal is $\frac{1}{10}$ then Find the two numbers.

27. Prove that : $-\frac{Sin\,[90°-\theta]}{Cosec\,[90°-\theta] - Cot[90°-\theta]}$ = 1+ Sin θ

OR

Prove that $\sqrt{\frac{1+Cos\,A}{1-Cos\,A}}$ = Cosec A + Cot A

28. Find the mean of the following data.

Class Interval	10 – 20	20 – 30	30 – 40	40 - 50	50 - 60
Frequency	3	3	10	2	2

OR

Find median of the following data

Class Interval	0– 10	10– 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80
Frequency	7	14	13	12	20	11	15	08

29. A bag contains 5 red, 8 white and 4 green marbles .one marble is taken out of the bag at random. Find the probability that marble taken out is

a) White Marble b) Not Red Marble

30. The following table given the information of 25 students their weight as follows draw "less than Type of ogive graph" for the given data.

Weight (in k g)	No of students
Less than 38	0
Less than 40	5
Less than 42	10
Less than 44	15
Less than 46	20
Less than 48	25

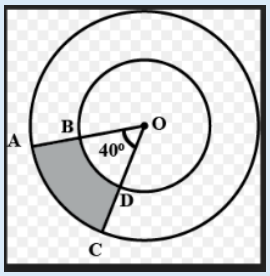
31. Prove that the "length of tangents drawn from an external print to a circle are equal.

OR

Prove that the tangent to the circle at any point is the perpendicular to the radius of the circle that passes though the point of contact.

32. Construct a triangle ABC whose sides are 4cm, 5cm, 6cm, and then contract a triangle whose Sides are $\frac{3}{4}$ of the corresponding sides of the triangle ABC

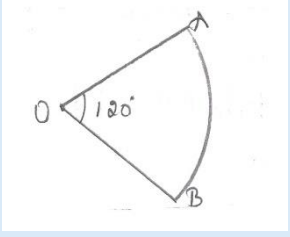
33. Two concentric circular of radii 7cm and 21cm are drawn as shown in fig if $\angle AOC = 40°$ find the Area of the shaded region.



OR

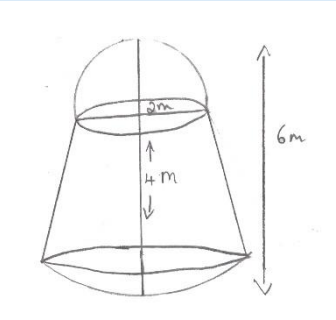
A hand fan is made up of cloth fixed in between metallic wires it is the shape of sector of circle of Radius 14cm of an angle 120° as shown in the figure calculate.

i) Area of cloth used ii) Total length of metallic wire



V. Answer the following question. 4X4=16

34. A Buddha monument is in the shape of frustum of cone at the bottom and hemisphere at the top as Shown in the figure. If diameter of the base is 10m and diameter of top of the frustum is 4 m and total height of the monument is 6m Find the cost of painting the monument at the rate of 100 rupees per Square meter.



35. Find the solution of pair of linear equations by graphical method.

$2x + y = 10$

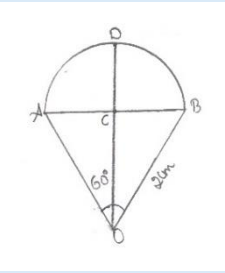
$x + y = 7$

36. In an arithmetic progression, the sum of 2nd and 5th term is 15. and the sum of the 4th and 10th term the same A.P is 36. write the progression

OR

In an A.P P^{th} term is 'a ' q^{th} term is 'b' and r^{th} term is' c'. then prove that a $(q - r) + b(r - p) + c(p - q) = 0$.

37. In the given figure, ADB is an arc $\angle AOB = 60^0$. DC $\perp$ AB measure the length. of OC, BC and CD



VI. Answer the following questions. 1X5=5

38. State and prove Pythagoras theorem.

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