RS-1

FIRST REVISION EXAMINATION- 2025

10 - Std

MATHEMATICS

TIME : 3.00 Hrs

MARKS:100

PART I

CHOOSE THE CORRECT ANSWER:

14X1=14

1. A= {a, b, p}, B= { 2,3}, C= {p,q,r,s} then n[(AUC) X B] is

(a) 8   (b) 20   (c) 12   (d) 16

2. If f is a identity function, then the value of f(1)-2f(2)+f(3) is

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

3. Given $F_1= 1, F_2= 3$ and $F_n= F_{n-1}+ F_{n-2}$ then F_5 is

(a) 3   (b) 5   (c) 8   (d) 11

4. The next term of the sequence $\frac{3}{16}, \frac{1}{8}, \frac{1}{12}, \frac{1}{18}, \ldots$ is

(a) $\frac{1}{24}$ (b) $\frac{1}{27}$ (c) $\frac{2}{3}$ (d) $\frac{1}{81}$

5. $\frac{3y-3}{y} \div \frac{7y-7}{3y^2}$ is

(a) $\frac{9y}{7}$ (b) $\frac{9y^2}{(21y-21)}$ (c) $\frac{21y^2-42y+21}{3y^3}$ (d) $\frac{7(y^2-2y+1)}{y^2}$

6. For the given matrix A = $\begin{pmatrix} 1 & 3 & 5 & 7 \\ 2 & 4 & 6 & 8 \\ 9 & 11 & 13 & 15 \end{pmatrix}$ the order of the matrix A^T is

(a) 2X3   (b) 3X2   (c) 3X4   (d) 4X3

7. Two poles of heights 6m and 11m stand vertically on a plane ground. If the distance between their feet is 12m, what is the distance between their tops?

(a) 13m   (b) 14m   (c) 15m   (d) 12.8m

8. The area of triangle formed by the points (-5,0), (0, -5) and (5, 0) is

(a) 0 sq.units   (b) 25 sq.units   (c) 5 sq.units   (d) none of these

9. The value of 'a' if the lines 7y = ax+4 and 2y = 3 - x are parallel

(a) $\frac{7}{2}$ (b) $\frac{-2}{7}$ (c) $\frac{2}{7}$ (d) $\frac{-7}{2}$

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10. If the ratio of the height of a tower and the length of its shadow is $\sqrt{3} : 1$ then the angle of elevation of the sun has measure

(a) 45°   (b) 30°   (c) 90°   (d) 60°

11. If two solid hemispheres of same base radius r units are joined together along their bases, then urved surface area of this new solid is

(a) $4\pi r^2$ sq.units   (b) $6\pi r^2$ sq.units   (c) $3\pi r^2$ sq.units   (d) $8\pi r^2$ sq.units

12. A frustum of a right circular cone is of height 16 cm with radii of its ends as 8cm and 20cm. Then the volume of the frustum is

(a) $3328\,\pi$ cm³   (b) $3228\,\pi$ cm³   (c) $3240\,\pi$ cm³   (d) $3340\,\pi$ cm³

13. Variance of first 20 natural numbers is

(a) 32.25   (b) 44.25   (c) 33.25   (d) 30

14. A letter is selected at random from the word 'PROBABILITY', then the probability that the letter is not a vowel is

(a) $\dfrac{4}{11}$ (b) $\dfrac{7}{11}$ (c) $\dfrac{3}{11}$ (d) $\dfrac{6}{11}$

PART II

ANSWER ANY 10 QUESTIONS. QUESTION NO.28 IS COMPULSORY: 10X2=20

15. Let A = {1,2,3} and B = { x| x is a prime number less than 10 }. Find A x B and B x A.

16. Let f be a function from R to R defined by f(x) = 3x -5. Find the values a and b given that (a,4) and (1,b) belong to f.

17. If 13824 = 2^a X 3^b then find a and b.

18. Find the sum of 102, 97,92, ...upto 27 terms.

19. Find the LCM of x^3 -27, $(x-3)^2$, x^2 -9

20. Solve $2x^2 - 3x - 3 = 0$ by formula method.5

21. Find the value of a, b, c, d from the equation $\begin{bmatrix} a-b & 2a+c \\ 2a-b & 3c+d \end{bmatrix} = \begin{bmatrix} 1 & 5 \\ 0 & 2 \end{bmatrix}$

22. In two concentric circles, a chord of length 16 cm of larger circle becomes a tangent to the smaller circle whose radius is 6 cm. Find the radius of the larger circle.

23. Show that the given points are collinear (-3,-4), (7,2) and (12.5).

24. A player sitting on the top of a tower of height 20 m observes the angle of depression of a ball lying on the ground as 60°. Find the distance between the foot of the tower and the ball. ($\sqrt{3}$ =1.732).

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25. The curved surface area of a right circular cylinder of height 14cm is 88cm^2. Find the diameter of the cylinder.

26. Find the standard deviation of first 21 natural numbers.

27. A die is rolled and a coin is tossed simultaneously. Find the probability that the die shows an odd number and the coin shows a head.

28. The slant height of a frustum of a cone is 4m and the perimeter of circular ends are 18m and 16m. Find its curved surface area.

PART III

ANSWER ANY 10 QUESTIONS. QUESTION NO.42 IS COMPULSORY: **10X5=50**

29. Let A={1,2,3,4} and B={2,5,8,11,14} be two sets. Let f: A$\rightarrow$ B be a function given by f(x)=3x−1. Represent this function (i) by arrow diagram (ii) in a table form (iii) as a set of ordered pairs (iv) in a graphical form.

30. If f(x) = x^2 ; g(x) = 2x and h(x) = x+4. Show that (f o g) o h = f o (g o h).

31. The ratio of 6th and 8th term of an A.P is 7: 9. Find the ratio of 9th term to 13th term.

32. Find the sum to n terms of the series 0.4 + 0.44 + 0.444+... to n terms.

33. Find the square root of the polynomial $37x^2 - 28x^3 + 4x^4 + 42x + 9$ by division method

34. If α, β are the roots of $7x^2 + ax +2$ and if $\beta - \alpha = \frac{-13}{7}$. Find the values of ..

35. If A = $\begin{pmatrix} 1 & 1 \\ -1 & 3 \end{pmatrix}$ B = $\begin{pmatrix} 1 & 2 \\ -4 & 2 \end{pmatrix}$ C = $\begin{pmatrix} -7 & 6 \\ 3 & 2 \end{pmatrix}$ Verify that A (B+C) = AB + AC.

36. State and prove angle bisector theorem.

37. Find the area of the quadrilateral whose vertices are at (-9,0), (-8,6), (-1,-2) and (-6, -3).

38. If $\frac{cos\alpha}{cos\beta}$ = m and $\frac{cos\alpha}{sin\beta}$ = n, then prove that (m^2 + n^2) cos^2 β = n^2

39. The internal and external diameter of a hollow hemispherical shell are 6 cm and 10 cm respectively. If it is melted and recast into a solid cylinder of diameter 14 cm, the find the height of the cylinder.

40. The time taken (in minutes) to complete a homework by 8 students in a day are given by 38, 40, 47, 44, 46, 43, 49, 53. Find the coefficient of variation.

41. A box contains cards numbered 3, 5, 7, 9,....35,37. A card is drawn at random from the box. Find the probability that the drawn card have either multiples of 7 or a prime number.

42. A straight line AB cuts the co-ordinate axes at A and B. If the mid point of AB is (2,3), find the equation of AB.

PART IV

ANSWER ALL THE QUESTIONS: 2X8=16

43.(a) Construct a triangle similar to a given triangle ABC with its sides equal to $\frac{6}{5}$ of the corresponding sides of the triangle ABC. (scale factor to $\frac{6}{5} > 1$)

(OR)

(b) Draw a circle of radius 4 cm. At a point L on it draw a tangent to the circle using the alternate segment theorem.

44.(a) A school announces that for a certain competitions, the cash price will be distributed for all the participants equally as show below

No. of participants (x)	2	4	6	8	10
Amount for each participant in ₹ (y)	180	90	60	45	36

(i) Find the constant of variation.

(ii) Graph the above data and hence, find how much will each participant get if the number of participants are 12.

(OR)

(b) Draw the graph of $y = x^2 - 4x + 3$ and use it to solve $x^2 - 6x + 9 = 0$

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