Padasalai's Telegram Groups!

(தலைப்பிற்கு கீழே உள்ள லிங்கை கிளிக் செய்து குழுவில் இணையவும்!)

- Padasalai's NEWS - Group
https://t.me/joinchat/NIfCqVRBNj9hhV4wu6_NqA

- Padasalai's Channel - Group
https://t.me/padasalaichannel

- Lesson Plan - Group
https://t.me/joinchat/NIfCqVWwo5iL-21gpzrXLw

- 12th Standard - Group
https://t.me/Padasalai_12th

- 11th Standard - Group
https://t.me/Padasalai_11th

- 10th Standard - Group
https://t.me/Padasalai_10th

- 9th Standard - Group
https://t.me/Padasalai_9th

- 6th to 8th Standard - Group
https://t.me/Padasalai_6to8

- 1st to 5th Standard - Group
https://t.me/Padasalai_1to5

- TET - Group
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- PGTRB - Group
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- TNPSC - Group
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HUSTELR'S HUB ACADEMY-CBE

SSLC – MODEL QUESTION PAPER
MATHS

Time: 2.30hrs **Max. Marks: 100**

PART – I

I. ANSWER ALL THE QUESTIONS: **14 x 1 = 14**

1. If n(AxB) = 6 and A = {1,3} then n(B) is
   a) 1 b) 2 c) 3 d) 4
2. For any two non-empty sets A and B, A x B is called as
   a) Cartesian Product b) Cartesian plane c) Relation d) None
3. How many terms are there in G.P 5, 20, 80, 320, …… 20480?
   a) 5 b) 6 c) 7 d) 9
4. $7^{4k} \equiv$ _____ (Mod 100)
   a) 1 b) 2 c) 3 d) 4
5. Transpose of a column Matrix is _____
   a) Unit matrix b) diagonal matrix c) Column matrix d) row matrix
6. If A = $\begin{pmatrix} y & 0 \\ 3 & 4 \end{pmatrix}$ and I = $\begin{matrix} 1 & 0 \\ 0 & 1 \end{matrix}$ then $A^2 = 16$ I for
   a) y=4 b) y=5 c) y= -4 d) y=16
7. $y^2 + \frac{1}{y2}$ is not equal to
   a) $\left(y + \frac{1}{y}\right)^2$
   b) $\left(y - \frac{1}{y}\right)^2 + 2$
   c) $\left(y + \frac{1}{y}\right)^2 - 2$
   d) $\frac{y4+1}{y2}$
8. Slope of line ax+b+c = 0 is
   a) m= $\frac{-b}{a}$ b) m= $\frac{-a}{b}$ c) m= $\frac{a}{b}$ d) m= $\frac{b}{a}$
9. $cosec^2 67 - \tan^2 23 =$ _____
   a) 0 b) 1 c) -1 d) 2
10. Sec θ = Cosec θ if θ is
    a) 30° b) 45° c) 60° d) 90°
11. The total surface area of hemi-sphere is how much times the square of its radius
    a) 3π b)2π c) π d) 4π
12. The probability of a sure event is _____
    a) 0 b) 1 c) 2 d) none
13. The range of the first 10 prime numbers
    a) 9 b) 20 c) 27 d) 5
14. P (A ∩ B) = _____
    a) P(A) + P(B) b) P(A) – P(A∩B) c) P(A) = P(A∩ B) d) P(B) – P(A∩ B)

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PART II

II. ANSWER ANY 10 OF HE FOLLOWING QUESTIONS

15. If f(x) = 2x – 1 , g(x) = $\frac{X+1}{2}$ show that fog = gof = x
16. Find the number of terms in the A.P 3,6,9,…111.
17. Find the value of 94≡ x (mod 6)
18. Define Matrix
19. If A = $\begin{matrix} 0 & 4 & 9 \\ 8 & 3 & 7 \end{matrix}$ B= $\begin{matrix} 7 & 3 & 8 \\ 1 & 4 & 9 \end{matrix}$ find the value of 3A – 9B
20. Solve $2x^2 – 3x – 3 = 0$ by formula method.
21. If the points (2,3) (4,a) (6,-3) are collinear, then find he value of a?
    P and Q are points on sides AB and AC respectively of ΔABC. If AP=3cm, PB=6cm, AQ=5cm and QC=10cm. Show that BC=3PQ.
22. Find the slope of the line joining the points (sinθ , -cosθ) and (-sinθ , cosθ)
23. From the top a rock of $50\sqrt{3}$ m high, the angle of depression of a car on the ground is to be 30°. Find the distance between the car and the rock?
24. Prove that $\frac{sec\theta}{sin\theta} - \frac{sin\theta}{cos\theta} = \cot\theta$
25. Using clay a student made a right circular cone of height 48cm and base radius 12cm. Another student reshapes it in the form of sphere. Find the radius of the sphere?
26. A number is taken in random from 1 to 100. Find the probability that it is not a square number.
27. A coin is tossed thrice. What is the probability of getting i) at least 2heads ii) three tails
28. The slant height of a frustum of a cone is 5cm and the radii of its end are 4cm and 1cm. Find its curved surface area?

PART III

111. ANSWER ANY 10 QUESTIONS: (No. 42 is compulsory)

29. Let A= {1,2,3} B={2,3,5} C={3,4} D={1,3,5} check if (A∩C) X (B∩D) = (AxB) ∩ (CxD) is true?

30. If $f(x) = X^2$, g(x) = 2X and h(x) = x+4. Prove that fo (goh) = (fog) oh

31. The sum of three consecutive number in G.P is -2 and sum of heir squares is 12. Find the three numbers?

32. The ratio of the 4^{th} and the 7^{th} term in an A.P is 2:3, Find the values of 6^{th} and 8^{th} term.

33. If $9x^4+12x^3+28x^2+ax+b$ is a perfect square. Find the value of a and b?

34. Let A= $\begin{bmatrix} 1 & 2 \\ 1 & 3 \end{bmatrix}$ B= $\begin{bmatrix} 4 & 0 \\ 1 & 5 \end{bmatrix}$ C=$\begin{bmatrix} 2 & 0 \\ 1 & 2 \end{bmatrix}$, show that $(A-B)^T = A^T - B^T$

35. A quadrilateral has vertices at A(-4,-2), B(5,-1), C(6,5) and D(-7,6). Show that the mid points of its sides form a parallelogram.

36. State and prove Thales theorem

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37. A road is flanked on either side by continuous rows of houses of height $4\sqrt{3}$m with no space in between them. A pedestrian is standing on the median of the road facing a row house. The angle of elevation from the pedestrian to the top of the house is 30°. Find he width of the road?

38. Two unbiased dice are rolled once. Find the probability of getting

i) a doublet ii) the product as a prime number iii) the sum as a prime number

iv) the sum as 1

39. A hollow cylinder pipe is of length 40cm. Its internal and external radii are 4cm and 12cm respectively. It is melted and cast into a solid cylinder of length 20cm. Find the radius of the new solid.

40. The number of televisions sold in each day of a week are 13,8,4,9,7,12,10. Find its standard deviation?

41. Find the H.C.F of 396,504,636.

42. Rekha has 15 square colour papers of sizes 10cm, 11cm, 12cm,…24cm. How much area can be decorated with these colour papers?

PART IV

IV.ANSWER BOTH THE QUESTION BY CHOOSING EITHER OF THE ALTERNATIVES

43. a) Construct a triangle ABC of base BC=8cm, $\angle A = 60°$ and the bisectors of $\angle A$ meets BC at D such that BD=6cm

Or

b) Find the GCD of x^4+3x^3-x-3 and x^3+x^2-5x+3

44. a) Draw the graph of $y=x^2-5x-6$ and hence solve $x^2-5x-14=0$

Or

b) Take a point which is 11cm away from the centre of a circle of radius 4cm and draw two tangents to the circle from that point.