MUNICIPAL SCHOOLS, ANDHRA PRADESH.

SA – I MODEL PAPER: 2O22

MATHEMATICS: PAPER - I & II

Class: 10th **Max Marks: 100** **Time: 3.15 Hrs**

Instructions:

1. In the duration of 3hrs, 15 min of time is allotted to read the question paper.
2. All answers shall be written in the answer booklet only.
3. Question paper consists of 4 sections and 33 questions.
4. Internal choice is available; in section IV only.
5. Answers shall be written neatly and legibly.

SECTION- I

Note: **12 x 1 =12 M**

1. Answer all the questions in one word or phrase.
2. Each question carries **1** mark.

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1. Number of prime factors of 210 is

   A) 1 B) 2 C) 3 D) 4

2. Statement A: $\log_a a=0$

   Statement B: $\log_a 1=1$ choose the correct answer

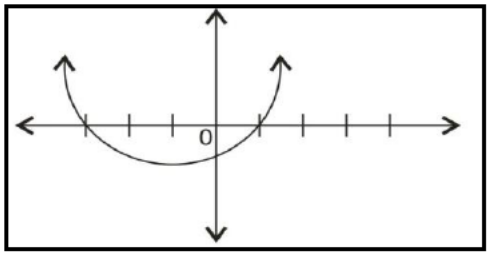
   A) Both A and B are true C) A is false, B is true

   B) A is true, B is false D) Both A and B are false

3. In Δ ABC if sin A= Cos B then $\angle C$ =?

4. If n(A) = 20, n(A∩B)= 5 then n(A-B) = _____

5. In the adjacent figure the Zeros of the polynomial are



6. Match the following

A) Sin 60°	1) $\frac{1}{2}$
B) Cos 60°	2) $\frac{\sqrt{3}}{2}$
C) Tan 60°	3) $\sqrt{3}$

a) A-1, B-2, C-3 b) A-2, B-3, C-1 c) A-2, B-1, C-3 d) A-3, B-1, C-2

7. If A= {1, 2, 3} then number of subsets of A=_____

8. Sum of the Zeros of the polynomial $x^2 - 4$ is _____

9. Median of the values Cos 0°, Sin 30°, tan 60° is _____

10. Mean of first twenty odd natural numbers is

11. If P (E) =1 then P (not E) =?

12. A die is thrown once then find the probability of getting an even number is?

SECTION – II

Note: **8 x 2 = 16 M**

1. Answer all the questions.
2. Each question carries **2** marks.

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13. Find the LCM of 36, 48, 72.
14. If A= {1,3,5,7}, B= {1,2,3,4,5,6} find A-B and B-A.
15. If 3tan A=4 then find sin A and Cos A
16. If sum of the marks of 15 students is 420 then find the mean of the data
17. Check whether 2,3 are Zeroes of the polynomial $x^2 - 5x + 6$
18. Write the formula for Median for a grouped data and explain the symbols in words
19. If three coins are tossed at a time then write all possible out comes
20. Draw a Venn diagram for A-B.

SECTION – III

Note: **8 x 4 = 32 M**

1. Answer all the questions.
2. Each question carries **4** marks.

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21. Find a Quadratic polynomial whose Zeroes are $\frac{1}{2}$ and $\frac{1}{3}$.
22. From a deck of 52 cards if a card is drawn at random then find the probability that it is i) King ii) Diamond card
23. Find the median of the data 13,23,12,18,26,19,14 and 20
24. Explain why 7 x 6 x 5 x 4 x 3 x 2 x 1+5 is a composite number

25.Show that $\sqrt{\frac{1-Cos\theta}{1+Cos\theta}} = Co\sec\theta - Cot\theta$.

26.Write the following are in set builder form

i) A= {1,4,9,16,25}

ii) B= {1, $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}$ }

iii) C= {5,10,15,20,25}

iv) D= {2,3,5,7,11,13}

27.Write 2 log3 + 3 log5 – 5 log2 as single logarithm.

28.If P(x) = 3 χ^2 – 2 χ + 6 then find its sum of zeroes and product of zeroes.

SECTION – IV

Note: **5 x 8 = 40 M**

1. Answer all the questions.
2. Each question carries **8** marks.
3. Each question has internal choice.

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29. a) If log $\frac{x+y}{3} = \frac{1}{2}(\log x + \log y)$ then find the value of $\frac{x}{y} + \frac{y}{x}$

OR

b) Find the mode of the following data

Class	5-10	10-15	15-20	20-25	25-30
Frequency	4	45	20	13	9

30. a) If A= {1,2,3,4}, B= {2,4,6} then find

1) A-B 2) B-A 3) (A-B) U (B-A)

OR

b) A box containing 90 discs which are numbered from 1 to 90. If one disc is drawn at random from the box find the probability that it is

i) a two digital number ii) a perfect square numbers

iii) a number divisible by 5

31. a) Verify that 1, -1, and -3 are Zeroes of the polynomial x^2+3x^2-x-3 and check relationship between Zeroes and coefficients.

OR

b) If $Co\sec\theta+Cot\theta=k$, then verify $Cos\theta=\frac{k^2-1}{k^2+1}$?

32. a) if $(3.2)^x = (0.32)^y = 100$ then find the value of $\frac{1}{x}-\frac{1}{y}$.

OR

b) If tan 2A = cot (A-18^o) where 2A is acute angle. Find the value of A.

33.a) Draw the graph of the polynomial $p(x)=x^2-x-6$ and find the zeroes of $p(x)$ from the graph.

OR

b) Draw a less than Ogive curve for the following data

CI	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	4	6	10	12	10	8