

Dr.K.K.R GOWTHAM (E.M) HIGH SCHOOL :: GUDIVADA

Class : X - State

Marks : 50


Sub : Mathematics

MODEL PAPER - 1

Time: 2 1/2 hrs

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**SECTION - A (12 × 1/2 = 6M)**

1. What is the last digit of  $5^{100}$
2. Find the discriminate of  $2x^2 + 3x + 1 = 0$
3. "Women prime ministers of India " is what type of set?
4. Find the HCF of 50, 70.
5. In which shape the heap of sand lies on the floor?
6. "Mounika bought a notebook and 2 pens for the cost of 50rupees". Express it in a linear equation form.
7. If the lines  $l_1$  and  $l_2$  are parallel then what is their solution ?
8. If  $p$  and  $q$  are zeroes of  $3x^2 - 4x + 5$ , then find the value of  $p+q$
9.  This diagram represents which progression.
10. The ratio of radii of two spheres is 2 : 3, then what about their surface areas.
11. If  $n(A) = 4$  then what is the value of  $n(p(A))$  ?
12. Draw a rough graph of a quadratic equation which has equal roots.

**SECTION - B (8 × 1 = 8 M)**

13. Write the set builder form of  $A = \left\{1, \frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{6}\right\}$
14. If the sum of three numbers in A.P. is 36, then find the middle term.
15. Find the value of  $x + \frac{1}{x}$  if  $x^2 - 2x + 1 = 0$
16. Find the length of the diagonal of a cuboid whose dimensions are 6cm × 3cm × 2cm.
17. 64, 32, 16, 8 ..... denotes which type of progression and why?
18. Write one parallel line equation to  $2x + 3y - 8 = 0$
19. The rational number  $\frac{23}{2^2 \times 5}$  will terminate after how many decimal places.
20. Draw a diagram of two cubes having the same volume joined end to end together.

**SECTION - C (8 × 2 = 16 M)**

21. If  $\alpha, \beta$  are two zeroes of the polynomial  $25p^2 - 15p + 2$ . Find a quadratic polynomial whose zeroes are  $\frac{1}{2\alpha}$  and  $\frac{1}{2\beta}$ .
22. Find the L.S.A and volume of the cylinder of diameter 7cm and height 7cm.

23. Find the 10<sup>th</sup> term from the end of the A.P. 8, 10, 12, ..... 126.
24.  $(7 \times 11 \times 3) + (7 \times 11 \times 5)$  is a composite number? Justify.
25. Check  $2x + y = 14$ ,  $x - 3y = 4$  are consistent or Inconsistent? Justify.
26.  $A = \{x : x \text{ is a natural number } < 1\}$   $B = \{x : x \text{ is a odd number divisible by } 2\}$ , what type of sets A and B. Explain? Also find  $A \cup B$  and  $n(A \cup B)$
27. If length, breadth, height of a cuboid is  $\sin 60^\circ$ ,  $\tan 30^\circ$  and  $\sec 30^\circ$ , then find its volume.
28. Draw a rough diagram of linear equations  $x = 3$  and  $y = 4$

**SECTION - D (5 × 4 = 20 M)**

29. a) A pen stand is a made of wood in the shape of cuboid with three conical depressions to hold the pens. The dimensions of the cuboid are  $15\text{cm} \times 10\text{cm} \times 3.5\text{cm}$  and the depth is  $1.4\text{cm}$ . find the volume of the wood in the entire stand.
- (Or)
- b) If the sum of first 7 terms of an A.P is 49 and that of 17 terms is 289. Find the sum of first  $n$  terms.
30. a) The difference of squares of two numbers is 180. The square of the smaller number is 8 times the larger number. Find the two numbers.
- (Or)
- b) The diameter of a metallic sphere is  $6\text{cm}$ . It is melted and drawn into a wire having diameter of the cross section as  $0.2\text{ cm}$ . Find the length of the wire.
31. a) Show that  $3 + 5\sqrt{7}$  is an irrational number
- (Or)
- b) Verify that  $4, -2, -1/2$  are the zeroes of the cubic polynomial  $p(x) = 2x^3 - 5x^2 - 14x + 8$  and then verify the relationship between zeroes and coefficients .
32. a) State the following sets are finite or infinite
- (i)  $\{x / x \in N \text{ and } (x-3)(x-4) = 0\}$                       (ii)  $\{x / x \in N \text{ and } x \text{ is prime } \}$
- (iii)  $\{x / x \in N \text{ and } x^2 = 16 \}$                                       (iv)  $\{x / x \in N \text{ } x \text{ is odd } \}$
- (Or)
- b) Find the two consecutive odd positive integers, sum of whose squares is 290.
33. a) Draw the graph of  $y = x^2 + 3x - 4$  and find the zeroes.
- (Or)
- b) Solve the equations  $x + y - 16 = 0$  and  $x - 2y + 2 = 0$  graphically.