



**PART - II****10×2=20****Answer any 10 questions. Question No. 28 is Compulsory:**

15. Find the numbers of subsets and the number of proper subsets or the following.

$$W = \{\text{red, Blue, Yellow}\}$$

16. Find  $A \cup B$ ,  $A \cap B$ ,  $A - B$  and  $B - A$  for the sets  $A = \{2, 6, 10, 14\}$ ,  $B = \{2, 5, 14, 16\}$ 17. If  $n(A) = 25$ ;  $n(B) = 40$ ,  $n(A \cup B) = 50$  and  $n(B') = 25$  find  $n(A \cap B)$ 18. Find any two rational numbers between  $\frac{1}{4}$  and  $\frac{1}{5}$ 19. Evaluate  $(49)^{1/2}$ 20. Simplify :  $5\sqrt{3} + 18\sqrt{3} - 2\sqrt{3}$ 21. Write in Scientific notations :  $(50000000)^4$ 22. Write the co-efficient of  $x^2$  and  $x$  in the polynomials  $4 + \frac{2}{5}x^2 - 3x$ 23. Show that  $(x+2)$  is a factor of  $x^3 - 4x^2 - 2x + 20$ 24. Find GCD of  $ab^2c^2$ ,  $a^2b^3c$ ,  $a^3bc^2$ 25. Classify the numbers as rational or irrational. 1)  $\sqrt{10}$  2)  $0.7\bar{6}$ 26. The mass of the Earth is  $5.97 \times 10^{24}$  kg and that of the Moon is  $0.073 \times 10^{24}$  kg  
What is their total mass?27. Find the roots of the following polynomial equation  $5x - 6 = 0$ 28. Expand  $(2x + 3y + 4z)^2$ **PART - III****Answer any 10 questions. Question No. 42 is compulsory.****10×5=50**29. Test for the commutative property of union and intersection of the sets  $P = \{x : x \text{ is a real number between } 2 \text{ \& } 7\}$  and  $Q = \{x : x \text{ is a rational number between } 2 \text{ and } 7\}$ 30. Verify  $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$  using Venn diagrams.

31. In a party of 45 peoples each one likes tea or coffee or both. 35 people like tea and 20 people like coffee. Find the number of people who

- 1) Like both Tea and Coffee
- 2) Do not like Tea
- 3) Do not like Coffee

32. Find the value of  $a$  and  $b$  if  $\frac{\sqrt{7}-2}{\sqrt{7}+2} = a\sqrt{7} + b$ 33. Convert the following decimal numbers in the form of  $p/q$ 

1)  $0.\bar{3}$

2)  $2.\bar{124}$

3)  $0.\bar{45}$

34. Multiply  $(4x - 5)$  and  $(2x^2 + 3x - 6)$ 35. If  $a + \frac{1}{a} = 6$  Find the value of  $a^3 + \frac{1}{a^3}$ 36. Factorize  $(x+y)^2 + 9(x+y) + 20$



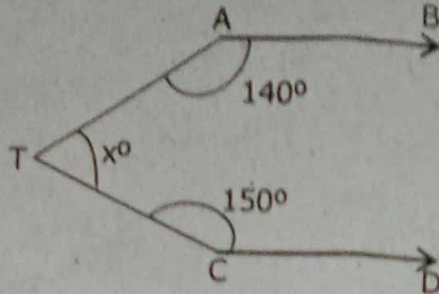
37. Find quotient and remainder when  $f(x)$  is divided by  $g(x)$ .

$$f(x) = 8x^3 - 6x^2 + 15x - 7 ; g(x) = 2x + 1.$$

38. Factorise  $(x+y)^2 + 9(x+y) + 20$

39. Factorize the polynomials using synthetic divisions  $x^3 - 10x^2 - x + 10$

40. In the figure AB is parallel CD Find  $x$ .



41. Find the symmetric between the following sets :

1)  $P = \{2, 3, 5, 7, 11\}$  ;  $Q = \{5, 7, 9, 10\}$

2)  $X = \{5, 6, 7\}$  ;  $Y = \{5, 7, 9, 10\}$

42. Represent the following numbers on the number line: 4.73 upto 4 decimal places.

#### PART - IV

2×8=16

43. a) Construct the centroid of  $\Delta PQR$  whose sides are  $PQ = 8\text{cm}$ ,  $QR = 6\text{cm}$ ,  $RP = 7\text{cm}$ .

(OR)

b) Draw  $\Delta PQR$  with sides  $PQ = 7\text{cm}$ ,  $QR = 8\text{cm}$ ,  $PR = 5\text{cm}$  and construct the orthocentre.

44. a) Construct the incentre of  $\Delta ABC$  with  $AB = 6\text{cm}$ ,  $\angle B = 65^\circ$  and  $AC = 7\text{cm}$ . Also draw the incircle and measure its radius.

(OR)

b) Draw a triangle  $ABC$  where  $AB = 8\text{cm}$ ,  $BC = 6\text{cm}$  and  $\angle B = 70^\circ$  and Locate its circumcentre and draw the circum circle.

-----