

DATE : 11-08-2019

CLASS 11th PCM

MARKS -40

TIME : 2 hrs

1. Write the set $\left\{\frac{1}{3}, \frac{3}{5}, \frac{5}{7}, \frac{7}{9}, \frac{9}{11}, \frac{11}{13}\right\}$ in set builder form. [1]
2. If $A = \{3, 5, 7, 9, 11\}$, $B = \{7, 9, 11, 13\}$, $C = \{11, 13, 15\}$ Find $(A \cap B) \cap (B \cup C)$ [1]
3. Write the following intervals in set builder form $(-3, 0)$ and $[6, 12]$ [1]
4. Write down all possible proper subsets of the set $\{1, \{2\}\}$. [1]
5. Write down the power set of A , $A = \{1, 2, 3\}$ [1]
6. If $A = \{p, q\}$, $B = \{p, q, r\}$ is B a superset of A ? Why? [1]
7. A survey shows that 73% of the Indians like apples, whereas 65% like oranges. What % Indians like both apples and oranges. [4]
8. If $P(A) = P(B)$, show that $A = B$. [4]
9. If A and B are two sets such that $A \cup B = A \cap B$, then prove that $A = B$. [4]
10. A and B are two sets such that $n(A - B) = 14 + x$, $n(B - A) = 3x$ and $n(A \cap B) = x$. Draw a Venn diagram to illustrate this information. If $n(A) = n(B)$, find (i) the value of x (ii) $n(A \cup B)$ [4]
11. Two finite sets have m and n elements. The total no. of subsets of the first set is 56 more than the total no. of subsets of second set. Find the value of m and n . [6]
12. A college awarded 38 medals in football, 15 in basketball and 20 in cricket. If these medals went to a total of 58 men and only three men got medal in all the three sports, how many received medals in exactly two of the three sports? [6]
13. In a town of 10,000 families, it was found that 40% families buy newspaper A , 20% families buy newspaper B and 10% families buy newspaper C . 5% families buy A and B , 3% buy B and C and 4% buy A and C . If 2% families buy all the three papers. Find the no. of families which buy
(i) A only (ii) B only (iii) None of A , B , and C [6]