DPP

DAILY PRACTICE PROBLEMS

Class : XIth
Date :

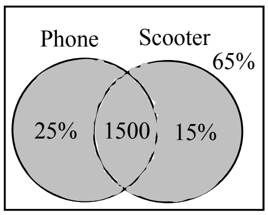
Solutions

Subject : MATHS
DPP No. :5

Topic :-SETS

81 **(c)**

Let the total population of town be x.



$$\therefore \quad \frac{25x}{100}+\frac{15x}{100}-1500+\frac{65x}{100}=x$$

$$\Rightarrow \quad \frac{105x}{100}-x=1500$$

$$\Rightarrow \quad \frac{5x}{100}=1500$$

$$\Rightarrow \quad x=30000$$

82 **(d)**

As A,B,C are pair wise disjoints. Therefore,

$A \cap B=\phi$,$B \cap C=\phi$ and $A \cap C=\phi$

$\Rightarrow A \cap B \cap C=\phi \Rightarrow (A \cup B \cup C) \cap (A \cap B \cap C)=\phi$

83 **(b)**

Clearly, $R=\{(1,3),(3,1),(2,2)\}$

We observe that R is symmetric only

84 **(d)**

Given figure clearly represents

$(A-B) \cup (B-A)$

85 **(d)**

R_4 is not a relation from A to B, because $(7,9) \in R_4$ but $(7,9) \notin A \times B$

86 **(c)**

R is reflexive if it contains $(1,1),(2,2),(3,3)$

$\because (1,2) \in R,(2,3) \in R$

$\because R$ is symmetric, if $(2,1),(3,2) \in R$

Now, $R=\{(1,1),(2,2),(3,3),(2,1),(3,2),(2,3),(1,2)\}$

R will be transitive, if $(3,1),(1,3) \in R$

Thus, R becomes an equivalence relation by adding (1,1) (2,2) (3,3),(2,1) (3,2),(1,3),(3,1). Hence, the total number of ordered pairs is 7

87 **(c)**

The set A is the set of all points on the hyperbola $xy = 1$ having its two branches in the first and third quadrants, while the set B is the set of all points on $y = -x$ which lies in second and four quadrants. These two curves do not intersect.

Hence, $A \cap B = \phi$.

88 **(b)**

Since R is an equivalence relation on set A. Therefore $(a,a) \in R$ for all $a \in A$.

Hence, R has at least n ordered pairs

89 **(d)**

It is given $A_1 \subset A_2 \subset A_3 \subset A_4 ... \subset A_{50}$

$$\therefore \bigcup_{i=11}^{50} A_i = A_{11}$$

$$\Rightarrow n\left(\bigcup_{i=11}^{50} A_i\right) = n(A_{11}) = 11 - 1 = 10$$

90 **(d)**

We have,

$b\,N = \{b\,x \mid x \in \mathrm{N}\} =$ Set of positive integral multiples of b

$c\,N = \{c\,x \mid x \in N\} =$ Set of positive integral multiples of c

$\therefore c\,N = \{c\,x \mid x \in N\} =$ Set of positive integral multiples of b and c both

$\Rightarrow d =$ 1.c.m. of b and c

91 **(d)**

Clearly, R is an equivalence relation

92 **(b)**

Number of element is $S = 10$

And $A = \{(x, y); x, y \in S, x \neq y\}$

$\therefore$ Number of element in $A = 10 \times 9 = 90$

93 **(c)**

Clearly,

$R =$ {(BHEL,SAIL),(SAIL,BHEL),(BHEL,GAIL),

(GAIL,BHEL),(BHEL,IOCL),(IOCL,BHEL)}

We observe that R is symmetric only

94 **(a)**

According to the given condition,

$$2^m = 112 + 2^n$$

$\Rightarrow \quad 2^m - 2^n = 112$

$\Rightarrow \quad m = 7, n = 4$

96 **(c)**

We have,

$$p=\frac{(n+2)(2n^5+3n^4+4n^3+5n^2+6)}{n^2+2n}$$

$$\Rightarrow p=2n^4+3n^3+4n^2+5n+\frac{6}{n}$$

Clearly, $p \in Z^+$ iff n = 1, 2, 3, 6. So, A has 4 elements

97 **(b)**

Clearly,

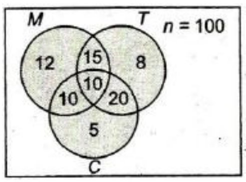
$x \in A-B \Rightarrow x \in A$ but $x \notin B$

$\Rightarrow x$ is a multiple of 3 but it is not a multiple of 5

$\Rightarrow x \in A \cap \overline{B}$

98 **(b)**

Total drinks=3(ie, milk, coffee, tea).



Total number of students who take any of the drink is 80.

$\therefore$ The number of students who did not take any of three drinks $= 100 - 80 = 20$

100 **(d)**

$n(A \cup B) = n(A) + n(B) - n(A \cap B)$

$= 12 + 9 - 4 = 17$

Hence, $n[(AUB)^c] = n(U) - n(A \cup B)$

$= 20 - 17 = 3$

ANSWER-KEY										
Q.	1	2	3	4	5	6	7	8	9	10
A.	C	D	B	D	D	C	C	B	D	D
Q.	11	12	13	14	15	16	17	18	19	20
A.	D	B	C	A	C	C	B	B	D	D