

### Unit 3

### Ex: 3.2

Q1  $n(A) = 24,$

$n(B) = 18,$

$n(A \cup B) = 31,$

$n(A \cap B) = ?$

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

$31 = 24 + 18 - n(A \cap B)$

$31 = 42 - n(A \cap B)$

$n(A \cap B) = 42 - 31$

$n(A \cap B) = 11$  Ans.

Q2  $n(A - B) = 23, n(A \cup B) = 44$  and

$n(A \cap B) = 2$  then find  $n(B - A)$  Also

find  $n(B)$

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

$44 = 23 + 2 + n(B - A)$

$44 = 25 + n(B - A)$

$44 - 25 = n(B - A)$

$19 = n(B - A)$

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

$23 = 44 - n(B)$

$n(B) = 44 - 23$

$n(B) = 21$  Ans.

Q3  $n(A \cup G) = 30$

$n(A) = 20$

$n(A \cap G) = 15$

$n(G) = ?$

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

$30 = 20 + n(G) - 15$

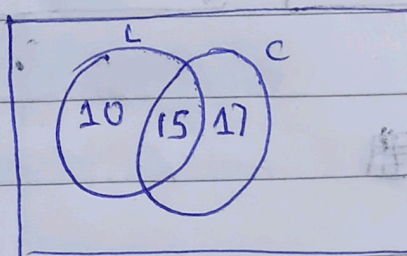
$30 = 5 + n(G)$

$30 - 5 = n(G)$

$25 = n(G)$  Ans.

Q4  $n(T) = 50, n(L) = 25, n(C) = 32$

$n(A \cap B) = 15, n(A \cup B) = ?$



$n(L \cup C) = n(L) + n(C) - n(L \cap C)$

$= 25 + 32 - 15$

$= 42$

$n(T) - n(L \cup C)$

$50 - 42 = 8$  Ans.

Q5  $n(T) = 940$ ,  $n(P) = 400$ ,  $n(E) = 240$ ,  $n(S) = 175$

Total children = 940

$n(P \cup E \cup S) = n(P) + n(E) + n(S)$

$n(P \cup E \cup S) = 400 + 240 + 175$

$n(P \cup E \cup S) = 815$

Total Children -  $n(P \cup E \cup S)$

$= 940 - 815 = 125$  Ans.

Q6  $n(M) = 100$ ,  $n(V) = 90$ ,  $n(C) = 40$ ,  $n(M \cap V) = 20$ ,  $n(C \cap V) = 14$

$n(M - V) = n(M) - n(M \cap V)$

$n(M - V) = 100 - 20$

$n(M - V) = 80$

$n(V) = n(M \cap V) + n(C \cap V)$

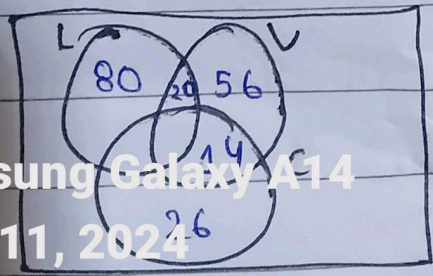
$90 = 20 + 14$

~~90~~  $56$

$n(C - V) = n(C) - n(C \cap V)$

$n(C - V) = 40 - 14$

$n(C - V) = 26$  Ans.



Q7  $n(T) = 200, n(L) = 42, n(C) = 80, n(I) = 100, n(L \cap C) = 23, n(L \cap I) = 10, n(C \cap I) = 14, n(L \cap C \cap I) = 8$

i)  $n(C) = n(L \cap C) - n(C \cap I)$

$80 = 23 - 14$

~~$80 = 43$~~

ii)  $n(L \cup C \cup I) = n(L) + n(C) + n(I) - n(L \cap C) - n(L \cap I) - n(C \cap I) + n(L \cap C \cap I)$

$n(L \cup C \cup I) = 42 + 80 + 100 - 23 - 10 - 14 + 8$

$n(L \cup C \cup I) = 183$

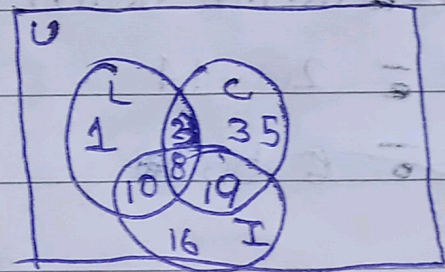
$n(T) - n(L \cup C \cup I)$

$= 200 - 183$

$= 17$

iii)  $n(\text{Students have iPod and Laptop but not Cell phone}) = 10 - 8$

$= 2$



Q8

$$n(B) = 350, n(T) = 280, n(B \cap T) = 150, n(B \cup T) = ?$$

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

$$n(B \cup T) = 350 + 280 - 150$$

$$n(B \cup T) = 480 \text{ Ans.}$$

Q9

$$n(T) = 50$$

$$n(ENC) = 8$$

$$n(E) = 26$$

$$n(C) = ?$$

$$n(E \cup C) = n(E) + n(C) - n(ENC)$$

$$50 = 26 + n(C) - 8$$

$$50 = 18 + n(C)$$

$$50 - 18 = n(C)$$

$$32 = n(C) \text{ Ans.}$$

Q10

$$n(T) = 70, n(B) = 48, n(C) = 40, n(T \cap C) = ?$$

$$n(T \cup C) = n(T) + n(C) - n(T \cap C)$$

$$70 = 48 + 40 - n(T \cap C)$$

$$70 = 88 - n(T \cap C)$$

$$n(T \cap C) = 88 - 70$$

$$n(T \cap C) = 18 \text{ Ans.}$$

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July 11, 2024

$$\text{Q11 } n(S) = 46, n(A) = 50, n(S \cup A) = ?$$

$$n(S \cup A) = n(S) + n(A)$$

$$n(S \cup A) = 46 + 50$$

$$n(S \cup A) = 96 \text{ Ans.}$$

$$\text{Q12 } n(A) = 52$$

$$n(F) = 112$$

$$n(A \cap F) = 12$$

$$n(A \cup F) = ?$$

$$n(A) - n(A \cap F)$$

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

$$n(A \cup F) = 52 + 112 - 12$$

$$n(A \cup F) = 152$$

$$n(A - F) = n(A) - n(A \cap F)$$

$$n(A - F) = 52 - 12$$

$$n(A - F) = 40$$

$$n(F - A) = n(F) - n(A \cap F)$$

$$n(F - A) = 112 - 12$$

$$n(F - A) = 100 \text{ Ans.}$$