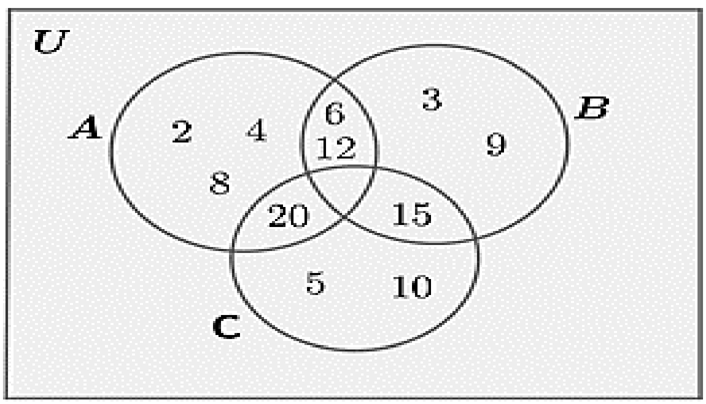
	BCM SCHOOL BASANT AVENUE DUGRI ROAD LUDHIANA ASSIGNMENT ANSWER KEY(SETS) CLASS XISC
1	C
2	**A**
3	**Assertion and reason is true and reason is correct explanation of assertion**
4	Let A and B be two sets having m and n elements respectively no of subsets of A = 2^m no of subsets of B = 2^n According to question $2^m = 56 + 2^n$ $2^m - 2^n = 56$ $2^n (2^{m-n} - 1) = 56$ $2^n (2^{m-n} - 1) = 2^3 (2^3 - 1)$ $2^n = 2^3$ $n = 3$ $m - n = 3$ $m - 3 = 3$ $m = 6$
5	**(i)** $n(A) = n(A - B) + n(A \cap B)$ $= 14 + x + x$ $= 14 + 2x$ $N(B) = n(B - A) + n(A \cap B)$ $= 3x + x$ $= 4x$ but $n(A) = n(B)$ (Given) $14 + 2x = 4x$ $x = 7$ **(ii)** $n(A \cup B) = n(A - B) + n(B - A) + n(A \cap B)$ $= 14 + x + 3x + x$ $= 14 + 5x = 14 + 5 \times 7 = 49$
6	

7	**We have to prove, A− (A − B) = A ∩ B** **So take L.H.S** **A − (A − B) = A − (A ∩ B’) {∵ A − B = A ∩ B’}** **= A ∩ (A ∩ B’)’** **= A ∩ [A’ ∪ (B’)’] {∵ (A ∩ B)’ = A’ ∪ B’}** **= A ∩ (A’ ∪ B) {∵ (B’)’ = B}** **= (A ∩ A’) ∪ (A ∩ B) {∵ Distributive property of set: (A ∩ B) ∪ (A ∩ C) = A ∩ (B ∪ C)}** **= ∅ ∪ (A ∩ B) {∵ A ∩ A’ = ∅}** **= A ∩ B = R.H.S** **Hence Proved**
8	**Sol.** Let $x \in (A-B)\cap(A-C)$ $\Rightarrow \quad x \in (A-B)$ and $x \in (A-C)$ $\Rightarrow \quad (x \in A$ and $x \notin B)$ and $(x \in A$ and $x \notin C)$ $\Rightarrow \quad x \in A$ and $(x \notin B$ and $x \notin C)$ $\Rightarrow \quad x \in A$ and $x \notin (B \cup C)$ $\Rightarrow \quad x \in A-(B\cup C)$ $\Rightarrow \quad (A-B)\cap(A-C) \subset A-(B\cup C)$ (i) Now, let $y \in A-(B\cup C)$ $\Rightarrow \quad y \in A-(B\cup C)$ $\Rightarrow \quad y \in A$ and $y \notin (B\cup C)$ $\Rightarrow \quad y \in A$ and $(y \notin B$ and $y \notin C)$ $\Rightarrow \quad (y \in A$ and $y \notin B)$ and $(y \in A$ and $y \notin C)$ $\Rightarrow \quad y \in (A-B)$ and $y \in (A-C)$ $\Rightarrow \quad y \in (A-B)\cap(A-C)$ $\Rightarrow \quad A-(B\cup C) \subset (A-B)\cap(A-C)$ (ii) From (i) and (ii), $A-(B\cup C) = (A-B)\cap(A-C)$
9	n(M)=a+b+d+e=15 $n(P) = b + c + e + f = 12$ n(C) = d + e+f + g = 11 $n(M \cap P) = b + e = 9$ $n(M \cap C) = d + e = 5$ $n(P \cap C) = e + f = 4$ e = 3

	so b = 6, d = 2, f = 1 a = 4, g = 5, c = 2 (i) g = 5, (ii) a = 4, (iii) c = 2 (iv) f = 1, (v) b = 6, (vi) g + a + c = 11 (vii) a + b + c + d + e + f + g + = 23 (viii) 25 - (a + b + c + d + e + f + g) = 25 - 23 = 2