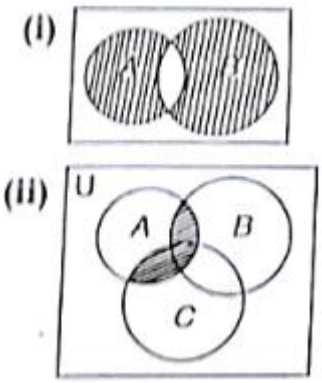
Short Answer Type Questions

Q. 1. Are Sets A = {1, 2, 3, 4}, B = {x : x ∈ N and 5 ≤ x ≤ 7} disjoint? Why? [DDE – 2017]

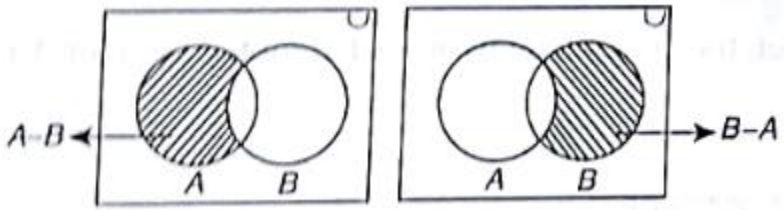
Sol. Yes, Sets A and B are disjoint, because A ∩ B = ϕ. 1
∴ A = {1, 2, 3, 4} and B = {5, 6, 7}
∴ A ∩ B = {1, 2, 3, 4} ∩ {5, 6, 7}

= ϕ

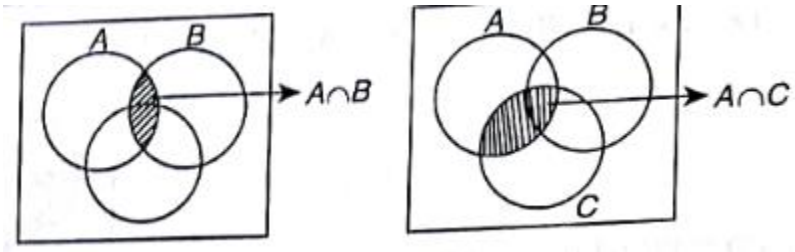
Q. 2. What is represented by the shaded regions in each of the following Venn-diagrams. [DDE – 2017]



Sol.



∴ (A – B) ∪ (B – A)



∴ (A ∩ B) ∪ (A ∩ C)

Or A ∩ (B ∪ C)

Q. 3. Let A = {All Prime numbers less than 10} and B = {all odd number less than 10}. Find (A – (A ∩ B)). **[KVS Agra - 2017]**

Sol. Here, A = {2, 3, 5, 7,} and B = {1, 3, 5, 7, 9}.
A ∩ B = {2, 3, 5, 7} ∩ {1, 3, 5, 7, 9}
= {3, 5, 7}
A – (A ∩ B) = {2, 3, 5, 7} – { 3, 5, 7}
= {2}

Q. 4. Find the Symmetric different of sets A = {1, 3, 5, 6, 7} and {3, 7, 8, 9}.

Sol. Given, Sets are A = {1, 3, 5, 6, 7} and B = {3, 7, 8, 9}
Now, A – B = {1, 3, 5, 6, 7} – {3, 7, 8, 9}
= {1, 5, 6}
And B – A = {3, 7, 8, 9} – { 1, 3, 5, 6, 7}
= {8, 9}
∴ Required Symmetric difference,
A Δ B = (A – B) ∪ (B – A) = {1, 5, 6} ∪ {8,9}
= {1, 5, 6, 8, 9}