****

**Work sheet -1**

**SET THEORY**

**MCQ (1 marks)**

1. Let U be the universal set containing 700 elements. If A and B are subsets of U such that

 n(A) = 200, n(B) = 300 and n(A ∩ B) = 100 then n(A’ ∩ B’) =

 a. 400 b. 300 c. 500 d. 800

2. If A = { 1, 2, 3, 4 } , B = { 4, 5, 6, 7 } , A ∩ B =

 a. { 4 } b. { 1, 2, 3, 4 } c. { 6 , 7 }. d. {1, 2}

3. If n (A ) =3 and n ( B ) = 6 and A B , then n(A U B)

 a. 9 b. 3 c. 6 d. None

4. The number of proper subsets of the set { 1, 2 , 3 } is :

 a. 9 b. 7 c. 6 d. 3

5. If A class has 175 students . The following data shows the number of students offering

 one or more subjects. Mathematics 100 ; Physics 70 ; Chemistry 40 ; Mathematics and

 Physics 30 ; Mathematics and Chemistry 28 ; Physics and Chemistry 23 ; Mathematics

 Physics and Chemistry 18 . How many students have offered Mathematics alone?

 a. 35 b. 22 c. 48 d. 60

6. Let A and B be two sets such that n(A)= 35, n(B)= 42 and n(A ∩ B)= 17. Find n(A – B)

 a. 25 b. 17 c. 18 d. 19

7. If A = { 2,3,4,8,10 } , B = { 3,4,5,10,12 } and C = { 4,5,6,12,14 } , then (A U B) ∩ (A U C)

 a. { 4,5,8,10,12 } b. { 2,4,5,10,12} c. { 3,8,10,12 } d. { 2,3,4,5,8,10,12 }

8. If A and B are two sets then A ∩ (A ∩ B’) =

 a. $∅$ b. A c. B d. None

9. If A $⊆$ B , then A ∩ B is equal to

 a. B b. A’ c. A d. B’

10. Let A and B be two sets such that n ( A ) = 0.16 , n ( B ) = 0.14 ,n ( A U B ) = 0.25 ,

 n(A ∩ B) =

 a. 0.5 b. 0.05 c. 0.3 d. none of these

11. Let A = { x: x $\notin $ R , x ≥ 4 } and B : { x: x ∊ R , x < 5} then A ∩ B is

 a. { 5 , 4} b. {4, 5} c. { 4 } d. { x: x ∊ R , 4≤ x < 5}

12. In a city 20% of the population travels by car , 50% travels by bus and 10% travels by

 both car and bus . Then persons travelling by car or bus is

 a. 60% b. 20% c. 30% d. 80%

13. If A and B are sets , then A ∩ ( B – A ) is

 a. A’ b. B c. $∅$ d. A

14. If A and B are not disjoint Set , then n (A U B ) is equal to

 a. A’ b. B c. $∅$ d. A

15. If A and B are two sets (A U B) = (A ∩ B) , then if

 a. A $⊆$ B b. B $⊆$ A c. A=B d. None

16. Given n (U) = 20 , n ( A ) = 12 , n ( B ) = 9 , n ( A ∩ B ) = 4 , where U is the universal set

 A and B are subsets of U , then n(A U B)’

 a. 3 b. 11 c. 9 d. 17

17. If a set has n elements then total number of subsets of that set are:

 a. 2n-1 b.2n-2 c.2n d. n

18. If A = {1, 2, 3, 4, 5, 6} then the number of proper subsets is

 a. 63 b. 64 c.32 d. 31

 Assertion and Reasoning based question

19. Assertion(A) : A set has 4 elements. Then the number of proper subset is 15

 Reason(R) : The formula for calculating the number of proper subset is 2n − 1

 a) Assertion is true and Reason is true . Reason is correct explanation for Assertion.

 b) Assertion is true and Reason is true . Reason is not the correct explanation for Assertion.

 c) Assertion is true and Reason is false.

 d) Assertion is false but Reason is true.

20. Assertion(A) : A disjoint set has no common elements

 Reason(R) : n(A U B) = n(A) + n(B)

 a) Assertion is true and Reason is true . Reason is correct explanation for Assertion.

 b) Assertion is true and Reason is true . Reason is not the correct explanation for Assertion.

 c) Assertion is true and Reason is false.

 d) Assertion is false but Reason is true.