IX - STD

MARKS:50 **TREM II - UNIT TEST - I** **TIME: 1.30hrs**

MATHEMATICS

I. CHOOSE THE BEST ANSWER:- **10×1=10**

1. If A= { p, q, r, s }, B = { r, s, t, u }, then $A \backslash B$ is (A) { p, q } (B) { t, u } (C) { r, s } (D) {p, q, r, s }
2. For any three sets P, Q and R, P-(Q∩R) is = _____
   (A) P- (QUR) (B) (P∩Q) - R (C) (P-Q) U (P-R) (D) (P-Q) ∩ (P-R)
3. For any three sets A, B and C, (A-B) ∩ (B-C)is equal to A) A only (B) B only (C) C only (D) ϕ
4. If A and B are two non-empty sets, then (A-B) U (A∩B) is (A) A (B) B (C) ϕ (D) U
5. In a city, 40% people like only one fruit, 35% people like only two fruits, 20% people like all the three fruits. How many percentages of people do not like any one of the above three fruits?
   (A) 5 (B) 8 (C) 10 (D) 15
6. Commutative property of set intersection is _____
   (A) AUB = BUA (B) (A∩B) - B (C) (A-B) = (B-A) (D) A∩B=B∩A
7. U={ 0,1,2,5,3,4}, A={ 5,6,3,8},B={ 2,6,8,1,3}, then Find n(A) = _____(A) 5 (B) 2 (C) 4 (D) 6
8. For any three sets P, Q and R, $(P \cap Q)'$ = ____ A) P' U Q' (B) P U Q (C) P' (D) Q'
9. If A, B, C Are non overlapping sets, then n(A ∩B∩C) Is = _____
   (A) n(A) + n(B)+n(C) (B) n(A UBUC) (C) 0 (D) n(A∩B)
10. In a town 30% like only coffee, 20% like only Tea,10% like only milk,15% like only Any two of Them,5%only like all the three.What is the percentage of people who like none them.
    (A) 15 % (B) 20% (C) 10% (D) 5%

II. ANSWER ANY 10 OF THE FOLLOWING **10×2=20**

1. If A={1,2,3,4} and B = {2,4,6,8}, then find i) A U B ii) B U A
2. If P = {1, 2,5,7,9}, Q={ 2,3,5,9,11},R={3,4,5,7,9} and S={2,3,4,5,8} then find (P ∩ Q) ∩ S
3. If A={ p,q,r,s}, B= {m,n,q,s,t} and C={ m,n,p,q,s} then verify the associative property of union of sets
4. Draw Venn diagram for each of the following A U (B ∩ C)
5. Draw Venn diagram for each of the following A U (B U C)
6. State De Margon's law for set Difference
7. State the formula for n(A U B U C)
8. A={a,c,e,f,h},B={c,d,e,f}, C = { a,b,c,f} , then verify n(AUBUC) = n(A)+n(B)+n(C)-n(A∩B)-n(B∩C)-n(C∩A)+n(A∩B∩C)
9. A={ x:x is a Prime Number and x < 7} , B={ x;x is a odd Number and x < 5} and C = { 2, 3,5, 7} then Find the value of n(A ∩ B ∩C)

10. If A={*a*,*b*,c,*d*}, B= {m,n,b,c,d} and C={ m,n,a,b,c} then verify the Commutative property of intersection of sets

11. If $P = \{x : x \in W \text{ and } 0 < x < 10\}$, $Q = \{x : x = 2n+1, n \in W \text{ and } n<5\}$ and $R = \{2,3,5,7,11,13\}$ then find P- (Q ∩ R)

12. U= { cat,parrot,sparrow,lion,dog,tiger,rat,crow,rabbit}**A={** cat,dog,rat},B={ crow,parrot,sparrow}, C= { lion,tiger} Then find n{ (A U B)' }

III. ANSWER ANY 5 OF THE FOLLOWING 5×4=20

1. If $A = \{0,2,4,6,8\}$ B={ x : x is a prime number and $x < 11$} and $C = \{x : x \in N \text{ and } 5 \le x < 9\}$ then verify AU (B ∩ C)= (AUB) ∩ (AUC)

2. verify A ∩ (B U C)= (A ∩ B) U (A ∩ C) using Venn Diagrams.

3. If A= { x : $x \in W$ and 0<x<10 } , B={ x : x = 2n+1 ,n ∈ W and n<5} and C={ 2,3,5,7,11,13} ,Then verify A-(B∩C) = (A-B) U (A-C)

4. If U = {4,7,8,10,11,12,15,16}, A={7,8,11,12,} and B = {4,8,12,15}, then verify De Morgan's Laws for complementation.

5. In a group of 100 students, 85 students speak Tamil, 40 students speak English, 20 students speak French, 32 speak Tamil and English, 13 speak English and French and 10 speak Tamil and French. If each student knows at least any one of these languages, then find the number of students who speak all these three languages.

6. In a colony, 275 families buy Tamil newspaper, 150 families buy English newspaper, 45 families buy Hindi newspaper, 125 families buy Tamil and English newspapers, 17 families buy English and Hindi newspapers, 5 families buy Tamil and Hindi newspapers and 3 families buy all the three newspapers. If each family buy at least one of these newspapers then find

   (i) Number of families buys only one newspaper
   (ii) Number of families buy at least two newspapers
   (iii) Total number of families in the colony.

7. In a class of 50 students, each one come to school by bus or by bicycle or on foot. 25 by bus, 20 by bicycle, 30 on foot and 10 students by all the three. Now how many students come to school exactly by two modes of transport?

_____ ALL THE BEST _____

Prepared by

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