

Brain International School Vikas Puri, New Delhi

ASSIGNMENT NO. 1

SUBJECT: MATHEMATICS

CLASS-XI

APRIL,2025

Ques1 Write in roster form:

(i) $A = \{x: x \text{ is a positive integer and is divisor of } 18\}$

(ii) B= {x: x is a positive integer and $x^2 < 40$ }

Ques2 State which of the following sets are finite, infinite

(i) $A = \{x: x \in N \text{ and } x^2 - 3x + 2 = 0\}$

(ii) B = {x: $x \in N \text{ and } x^2 = 9$ }

(iii) $C = \{x: x \in N \text{ and } x \text{ is even no.} \}$

(iv) $D = \{x: x \in N \text{ and } 2x - 3 = 0\}$

Ques3 let $A = \{p,q,r,s\}$, $B = \{p,q,r\}$, $C = \{q,s\}$. Find all sets X such that

(i) $X \subset B$ and $X \subset C$ (ii) $X \subset A$ and $X \not\subset B$

Ques 4 if A the set of letters in the word "JAIPUR" and B the set of letters in the word "JODHPUR".

Find following (i) AUB (ii) $A \cap B$ (iii) A-B (iv) B-A

Ques 5 For all sets A, B, and C, show that $(A - B) \cap (A - C) = A - (B \cup C)$

Ques 6 For all sets A and B, $A - (A - B) = A \cap B$.

Ques 7 Two finite sets have m and n elements. The number of subsets of the first set is 112 more than that of the second set. Find the values of m and n respectively.

Ques 8 If X = $\{8^n - 7n - 1 | n \in N\}$ and y = $\{49n - 49 | n \in N\}$. Then show that X is Subset to Y.

Ques 9 using sets U = {x;x ≤ 10 and $x \in N$ } A={1,3,5,7,9} B={2,4,6,8} And C= {2,3,4,5,6}

Verify that $A \cap (B' \cup C') = A \cap (B \cap C)'$

Ques 10 Given sets $A = \{1, 3, 5, 7, 9\}$, $B = \{0, 2, 4, 6\}$ and $C = \{7, 8, 9\}$. Which of the following may be taken as universal set for all the three sets A, B and C?

(a) $\{0, 1, 2, 3, 4, 5, 6, 7, 8\}$	(b) $\{1, 2, 3, 4, 5, 6, 7, 8, 9\}$			
(c) $\{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$	(d) $\{0, 1, 2, 3, 4, 5, 6, 7, 8, 9\}$	9, 10}		
Ques 11 Number of proper subsets of a set containing 4 elements is				
(a) 4^2 (b) $4^2 - 1$	(c) 2^4 (d) 2^4	⁴ – 1		

Ques 12. Which of the	e following is not correct?				
(a) $N \subset R$	(b) $N \subset Q$	(c) $Q \subset R$	(d) $N \subset T$		
Ques 13. On real axis if $A = [1, 5]$ and $B = [3, 9]$, then $A - B$ is					
(a) (5, 9)	(b) (1, 3)	(c) [5, 9)	(d) [1, 3)		
Ques 14. For any two sets X and Y, $X \cap (X \cup Y)'$ is equal to					
(a) X	(b) Y	(c) Ø	$(d) X \cap Y$		
Ques 15. For any two sets A and B, $((A' \cup B') - A)'$ is equal to					
(a) A	(b) B	(c) Ø	$(d) A \cap B$		
Ques 16. For any two sets A and B, $[B' \cup (B' - A)]'$ is equal to					
(a) A	(b) B	(c) Ø	$(d) A \cup B$		
Ques 17For any three sets A, B and C, $(A - B) \cap (C - B)$ is equal to					
(a) A – ($B \cap C$)	(b) $(A - C) \cap B$	(c) $(A \cap C) - B$	$(d) (A - B) \cap C$		
Ques 18. If $n(\cup) = 50$, $n(A) = 38$, $n(B) = 30$, then the least value of $n(A \cap B)$ is					
(a) 30	(b) 38	(c) 50	(d) 18		
Ques 19. Let $\cup = \{1, 2, 3,, 40\}$, $A = \{x : x \text{ is divisible by 2 and 3} \}$ and $B = \{x : x = n^2, n \in N\}$, then n(A)					
-n(B) is					
(a) 0	(b) 1	(c) 2	(d) 3		
Ques 20 If $A \subset B$, $A \neq B$, then A is called of B					
Ques 21. If $A \subset B$, $A \neq B$, then B is called of A					
Ques 22. If $\alpha = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$, $A = \{1, 2, 3, 5\}$, $B = \{2, 4, 6, 7\}$ and $C = \{2, 3, 4, 8\}$. Then					
(i) $(B \cup C)' =$ (ii) $(C - A)' =$					
Ques 23. If A and B are two sets, then $A \cup (A \cap B) =$					
Ques24. If $A = \{1,2,3\}, B = \{4\}, C = \{5\}$					
Then verify that					
(i) $A \times (B \cup C) = (A \times B) \cup (A \times C)$					

(ii) $A \times (B \cap C) = (A \times B) \cap (A \times C)$

(iii) $A \times (B-C) = (A \times B) - (A \times C)$

Ques25. If $A \times B = \{(a,1), (b,3), (a,3), (b,1), (a,2), (b,2)\}$ $B = \{1,2,3\}$, then find A&B?

Ques26 Let A and B be two sets such that A×B consists 6 elements. If three elements of A×B are

(1,4), (2,6), (3,6). Find A×B and B×A?