CBT Questions of Mathematics (JUNE – JULY)

Class- XI

CASE STUDY BASED QUESTIONS-

1. To check the understanding of Sets, a Maths teacher writes two sets A and B having finite number of elements. The sum of cardinal numbers of two finite sets A and B is 9. The ratio of number of subsets of set A and set B is 8:1.

Based on the above information solve the following questions-

(i) The cardinal number of set A is-

(a) 2 (b) 3 (c) 6
(d) 8

(ii) The cardinal number of set B is-

(a) 2 (b) 3 (c) 6
(d) 8

(iii) The maximum value of n(A U B) is-

(a) 3 (b) 6 (c) 8
(d) 9

(iv) The minimum value of n(A U B) is-

(a) 3 (b)6 (c) 8
(d) 9

2. Aarti explained operations on sets to her younger sister pooja, then wrote three sets as A= {2,3,6,7}, B={4,5,8} and C= {x:x is a prime number less than 9}. After explaining she asked following questions to her to check her understanding-

Based on the above information answer the following questions-

1. The value of n(A U B) is-

(a) 7 (b) 8 (c) 9
(d) 10

2. The value of n(B ∩ C) is-
(a) 4 (b) 3 (c) 2
(d) 1

3. The value of (A∩C)-B is-
(a) ϕ (b) {1,2} (c) {5}
(d) {3,6}

4. The value of n (A U B) ∩C is-

(a) 8 (b) 4 (c) 3

(d) 2

ASSERTION AND REASONING QUESTIONS-

3. **Assertion (A):** If two sets A and B are equal, then they have the same number of elements.
Reason (R): If two sets have the same number of elements, they are equal.

(a) Both A and R are true and R is the correct explanation of A.

(b) Both A and R are true but R is not the correct explanation of A.

(c) A is true but R is false.

(d) A is false but R is true.

(e) Both A and R are false.

4. **Assertion (A)** : The intersection of sets A={2,4,6} and B={3,5,7} is empty.
Reason (R): The union of sets A and B is denoted by A U B.

(a) Both A and R are true and R is the correct explanation of A.

(b) Both A and R are true but R is not the correct explanation of A.

(c) A is true but R is false.

(d) A is false but R is true.

(e) Both A and R are false.

Answer key:

1(i) (c) (ii) (b) (iii) (d) (iv) (b)

2 (i) (a) (ii) (d) (iii) (a) (iv) (b)

3.(c) (Equal sets must have the same elements, not just the same number of elements. Two sets with the same number of elements can still be different (e.g., {1, 2} and {3, 4}

4.(b)