

**DELHI PUBLIC SCHOOL JAMMU**  
**ASSIGNMENT-I**

**CLASS: XI**

**SUBJECT: MATHS**

**Q1. List all the elements of the following sets:**

(i)  $A = \{x : x \text{ is an odd natural number}\}$

(ii)  $B = \{x : x \text{ is an integer, } -\frac{1}{2} < x < \frac{9}{2}\}$

(iii)  $C = \{x : x \text{ is an integer, } x^2 \leq 4\}$

(iv)  $D = \{x : x \text{ is a letter in the word "LOYAL"}\}$

(v)  $E = \{x : x \text{ is a month of a year not having 31 days}\}$

(vi)  $F = \{x : x \text{ is a consonant in the English alphabet which precedes k}\}$ .

**Q2. Match each of the set on the left in the roster form with the same set on the right described in set-builder form:**

(i)  $\{1, 2, 3, 6\}$

(a)  $\{x : x \text{ is a prime number and a divisor of 6}\}$

(ii)  $\{2, 3\}$

(b)  $\{x : x \text{ is an odd natural number less than 10}\}$

(iii)  $\{M, A, T, H, E, I, C, S\}$

(c)  $\{x : x \text{ is natural number of divisor of 6}\}$

(iv)  $\{1, 3, 5, 7, 9\}$

(d)  $\{x : x \text{ is a letter of the word MATHEMATICS}\}$

**Q3. Are the following pair of sets equal? Give reasons.**

(i)  $A = \{2, 3\}$ ,  $B = \{x : x \text{ is solution of } x^2 + 5x + 6 = 0\}$

(ii)  $A = \{x : x \text{ is a letter in the word FOLLOW}\}$

$B = \{y : y \text{ is a letter in the word WOLF}\}$

**Q4. Let  $A = \{1, 2, \{3, 4\}, 5\}$ . Which of the following statements are incorrect and why?**

(i)  $\{3, 4\} \subset A$

(ii)  $\{3, 4\} \in A$

(iii)  $\{\{3, 4\}\} \subset A$

(iv)  $1 \in A$

(v)  $1 \subset A$

(vi)  $\{1, 2, 5\} \subset A$

(vii)  $\{1, 2, 5\} \in A$

(viii)  $\{1, 2, 3\} \subset A$

(ix)  $\emptyset \in A$

(x)  $\emptyset \subset A$

(xi)  $\{\emptyset\} \subset A$

**Q5. Write down all the subsets of the following sets**

(i)  $\{a\}$             (ii)  $\{a, b\}$             (iii)  $\{1, 2, 3\}$             (iv)  $\emptyset$

**Q6.** How many elements has  $P(A)$ , if  $A = \emptyset$ ?

**Q7.** If  $A = \{3, 5, 7, 9, 11\}$ ,  $B = \{7, 9, 11, 13\}$ ,  $C = \{11, 13, 15\}$  and  $D = \{15, 17\}$ ; Find

(i)  $A \cap B$

(ii)  $B \cap C$

(iii)  $A \cap C \cap D$

(iv)  $A \cap C$

(v)  $B \cap C$

(vi)  $A \cap (B \cap C)$

(vii)  $A \cap D$

(viii)  $A \cap (B \cup D)$

(ix)  $(A \cap B) \cap (B \cup C)$

(x)  $(A \cup D) \cap (B \cup C)$

**Q8.** Let  $A$  and  $B$  be two sets such that  $n(A) = 3$  and  $n(B) = 2$ . If  $(x, 1)$ ,  $(y, z)$ ,  $(z, 1)$  are in  $A \times B$ , find  $A$  and  $B$ , where  $x$ ,  $y$  and  $z$  are distinct elements.

**Q9.** The Cartesian product  $A \times A$  has 9 elements among which are found  $(-1, 0)$  and  $(0, 1)$ . Find the set  $A$  and the remaining elements of  $A \times A$ .

**Q10.** Let  $A = \{1, 2, 3, 4, 6\}$ . Let  $R$  be the relation on  $A$  defined by

$\{(a, b) : a, b, \in A, b \text{ is exactly divisible by } a\}$ .

(i) Write  $R$  in roster form

(ii) Find the domain of  $R$

(iii) Find the range of  $R$ .