

**Chapter -1- Exercise 1.1**

**I. Answer in brief (2 mark)**

1. Find  $A \times B$ ,  $A \times A$  and  $B \times A$ 
  - (i)  $A = \{2, -2, 3\}$  and  $B = \{1, -4\}$
  - (ii)  $A = B = \{p, q\}$
  - (iii)  $A = \{m, n\}$ ;  $B = \emptyset$
2. If  $B \times A = \{(-2, 3), (-2, 4), (0, 3), (0, 4), (3, 3), (3, 4)\}$  find A and B.

**II. Answer in a paragraph (5 mark)**

1. Let  $A = \{x \in \mathbb{W} \mid x < 2\}$ ,  $B = \{x \in \mathbb{N} \mid 1 < x \leq 4\}$  and  $C = \{3, 5\}$ . 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)  $(A \cup B) \times C = (A \times C) \cup (B \times C)$
2. Let  $A =$  The set of all natural numbers less than 8,  
 $B =$  The set of all prime numbers less than 8,  
 $C =$  The set of even prime number. Verify that
  - (i)  $(A \cap B) \times C = (A \times C) \cap (B \times C)$
  - (ii)  $A \times (B - C) = (A \times B) - (A \times C)$