National Institute of Open Schooling (NIOS)
Senior Secondary Course
Lesson – 02: Relations and Functions-I

Worksheet-02

1. Write a relation R 'is capital of" from set A to set B, where set A having five capitals and set B having five states of India.

2. Let A = {1, 2, 3} and B = {a, b}, Find Cartesian product of $A \times B$ and $B \times A$, and verify $A \times B = B \times A$

3. R be a relation from N to N defined by $R = \{(x, y) : 2x + y = 10, x, y \in N\}$

   Find (i) R in the roster from

   (ii) Domain and Range of R

4. For the function $F(x) = y = 3x + 2,$

   Find the range of the function when domain = {−2, 1, 3, 2}

5. Find the domain of the functions

   (i) $y = \dfrac{1}{(x-5)(x-7)}$ for $x \in R$

   (ii) $y = \dfrac{1}{2x-3}$ for $x \in R$

6. Let A = {1, 2, 3, 4, 5}. R be the relation on A defined by : {(a, b): a,b $\in A$, a divided b}

   i. Write relation R in roster form

   ii. Represent R through arrow diagram

   iii. Find domain and range of R

7. Let $f(x) = 3x + 2$ and $g(x) = 2x - 1$ be the two real functions. Find out the functions

   (i) $f + g(x)$

   (ii) $f - g(x)$

8   Give that $A = \{1, 2, 3\}$, $B = \{3, 4\}$ and $C = \{4, 5\}$

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

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

9   If $f(x) = x + 5, 0 \leq x \leq 6,$ then find the range of the function and represent it

                through arrow diagram.

10   Cite suitable examples of odd functions and even functions.   Draw a graph of any

                odd function and even function, and write your observations from the graph.