

Class – XI

Lesson Plan

TOPIC: RELATION AND FUNCTION

Brief Description: In mathematics also, we come across many relations such as number m is less than number n , line l is parallel to line m , set a is a subset of set b . In all these, we notice that a relation involves pairs of objects in certain order. Relation is linking of pairs of objects from two sets and then introduce relations between the two objects in the pair. Finally, we will learn about special relations which will qualify to be functions and its domain and range.

UN Sustainable Goals to be achieved (if any): Quality Education

Objectives: (put Bloom's level)

I - Specific Objectives:

Students will be able to understand:

- ❖ Cartesian products of sets
- ❖ Ordered pair
- ❖ Image
- ❖ Domain & range
- ❖ Functions & its types

II - Behavioral Objectives:

- ❖ Systematic behaviour (mapping with particular people with the help of any relation between them) i.e. ordered pair.

Process / Activities:

Activity (to introduce the lesson)

Students will be asked to explain cartesian products studied in X

Set **A** and **B** will be listed on the board **A** = {red, blue} and **B** = {b, c, s}, where b, c and s represent a particular bag, coat and Shirt then following question will be floated in the class.

- a) How many pairs of coloured objects can be made from these two sets?
- b) (red, b), (red, c), (red, s), (blue, b), (blue, c), (blue, s). {6 distinct}

c) Then definition of relation will be given two non-empty sets p and q.

Activity (to support learning)

Identity function:

Let R be the set of real numbers. Define the real valued function $f: R \rightarrow R$ by $f(x) = x$ for each x belongs to R. Such a function is called the identity function. To find the domain and range of f

Skills (as per subject)

- ❖ Logical thinking
- ❖ Understanding
- ❖ Problem solving

Activity / Assignment (to assess learning)

To distinguish between a Relation and a Function

1. Every Saturday, I visit my grandma. Before I leave, she takes out some coin and keep it on my hand. If she has more cash then she used to give me more. Make the Ordered pair of cash and money received.
2. To find domain and range of SIN function

Exercise for Notebook (put Bloom's level)

- ❖ Glossary
- ❖ R.T.C (Reference to Context)
- ❖ Typology of questions
- ❖ Value based question

Expected Learning Outcomes

Students would be able to learn:

- ❖ Cartesian products of sets
- ❖ Ordered pair
- ❖ Image
- ❖ Domain & range
- ❖ Functions & its types

Behavioral Perspective:

After completion of chapter student will achieve following perspectives:

- ❖ Systematic behaviour (mapping with particular people with the help of any relation between them) i.e. ordered pair.

Assessment: (put Bloom's level)

Q.1 Draw the graph of Signum Function and find its domain and range? (MS)

Q.2 Find the domain for which the functions (R)

$$f(x) = 2x^2 - 1 \text{ and } g(x) = 1 - 3x$$

Q3 If $R = \{(x, y) \mid x \text{ and } y \text{ are integers and } x^2 + y^2 = 64\}$ is a relation. Then find R. (A)