

Class – XI

Lesson Plan

TOPIC: PERMUTATIONS AND COMBINATIONS

BRIEF DESCRIPTION - In this chapter, we will teach students about fundamental principle of counting, permutations and combinations.

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

Objectives: (put Bloom's level)

I - Specific Objectives

Students will be able to learn about:

- ❖ Fundamental Principle of Counting
- ❖ Permutations
- ❖ Permutations when all the objects are distinct
- ❖ Permutations when all the objects are not distinct
- ❖ Concept and application of Permutations
- ❖ Meaning of Factorial
- ❖ Factorial Notation
- ❖ Derivation of the formula
- ❖ Combinations
- ❖ Concept and application of Combinations
- ❖ Concept and application of Permutations and Combination in given situation

II - Behavioral Objectives

Through this chapter students will attain

- ❖ Order
- ❖ Imagination
- ❖ Management
- ❖ Reasoning

Process / Activities

Activity (to introduce the lesson)

For introducing the chapter (Permutation and Combination):

1. Teacher will select any three students from the class and tell them to come in front of class along with their chairs. Now teacher tell all three selected students to sit in all possible ways and ask to remaining students of the class to count their seating arrangement

2. Teacher will give a common situation to all students of the class; situation be like:
A student has 3 white socks and 2 black shoes. How many different pairs of a white socks and a black shoe, can he/she wear?

Activity (to support learning)

1. To find the number of ways in which student can form 5-digit number which start with 76 (first two digits given) by using the digit 1 to 9 if digit can repeat.
2. To find the number of ways in which three cards can be selected from given five cards.

Skills (as per subject)

- ❖ Order
- ❖ Reasoning
- ❖ Problem solving
- ❖ Imagination

Activity / Assignment (to assess learning)

Twelve persons meet in a room and each shakes hand with all the others. How many total handshakes will be there?

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 about:

- ❖ Fundamental Principle of Counting
- ❖ Permutations
- ❖ Permutations when all the objects are distinct
- ❖ Permutations when all the objects are not distinct
- ❖ Concept and application of Permutations
- ❖ Meaning of Factorial
- ❖ Factorial Notation
- ❖ Derivation of the formula
- ❖ Combinations
- ❖ Concept and application of Combinations
- ❖ Concept and application of Permutations and Combination in given situation

Behavioral Perspective:

After completion of chapter student will achieve following perspectives:

- ❖ Order
- ❖ Imagination
- ❖ Management
- ❖ Reasoning

Assessment: (put Bloom's level)

Q1. Find the number of arrangements of the letters of the word INDEPENDENCE.

- a) In how many of these arrangements,
- b) Do the words start with P (Uni-Structural)?
- c) Do all the vowels always occur (Multi-Structural)?
- d) Do the vowels never occur together (Multi-Structural)?
- e) Do the words begin with I and end in P (Relational)?

Q2. From a class of 25 students, 10 are to be chosen for an excursion party. There are 3 Students who decide that either all of them will join or none of them will join. In how many ways can the excursion party be chosen (AEL)?