

Class – XI
Lesson Plan

Topic: Permutation and Combination

Brief Description of the lesson:

In this chapter students will learn about a new counting method based on fundamental principle of counting. Students will be able to learn arrangements and selections in different situations and also the formulae used.

Objectives:

I - Specific Objectives:

Students will be able to:

- 1) S1 state and apply the Fundamental Principle of Counting (**Understanding**)
(**Application**)
- 2) S2 define factorial notation and evaluate factorials for different values of n.
(**Understanding**) (**Application**)
- 3) S3 understand basic concept of Permutation and formula for finding number of permutations in different situations. (**Understanding**) (**Analysis**)
- 4) S4 understand basic concept of Combination and formula for finding number of permutations in different situations. (**Understanding**) (**Analysis**)
- 5) S5 distinguish between permutations and combinations. (**Analysis/Differentiate**)
- 6) S6 apply the formulas for permutations and combinations to solve real-world problems.
(**Application**)

II - Behavioral Objectives:

B1 Given a set of objects, students will be able to calculate the number of permutations of those objects, both when the objects are distinct and when they are not distinct. (**Analysis**)

B2 Given a set of objects, students will be able to calculate the number of combinations of those objects, both when order matters and when it does not. (**Analysis**)

B3 Students will be able to differentiate between arrangement and selection. As an example seating arrangement of a class room is a case of permutation and selection of players to make a cricket team of the class is a case of combination. (**Analysis/Differentiate**)

Process / Activities:

ACT1 Bookshelf activity: Give students a bookshelf with five spaces and five different books. Ask them to arrange the books in all possible ways. This activity can be used to teach

students the concept of permutations and how to use the permutation formula. **(Apply/Execution)**

ACT2 Handshake activity: Select 10 students randomly from the class and tell each student to shake hand with other and each one have to shake hand with all other 9 students. Then students will find total number of handshakes manually as well as using concept and formula of combination. **(Apply/Execution)**

Skills:

- (i) Problem-solving skills
- (ii) Logical thinking skills
- (iii) Mathematical reasoning skills

Assessment:

A1 Assessment of activity will be done on the basis of decided rubrics.

Expected Learning Outcomes:

Students would be able to:

- 1) Understand the fundamental principle of counting. **(Understand/Clarifying)**
- 2) Define permutations and combinations and distinguish between the two. **(Understand/Clarifying) (Analyze/Differentiating)**
- 3) Calculate factorial of a given number **(Apply/Implementation)**
- 4) Use permutations and combinations to solve counting problems. **(Apply/Implementation)**
- 5) Apply permutations and combinations to real-world situations. **(Apply/Implementation)**

Placements of Objectives, Instructional Activities and Assessment:

Topic/Start Date/Assessment					
Knowledge	Understanding	Application	Analysis	Synthesis	Evaluation
	S1	S1	S3		
	S2	S2	S4		
	S3	S6	S5		
	S4	ACT1	B1		
		ACT2	B2		
			B3		