AIS Learning
B.Sc. Physical Sciences - Pure Mathematics

Practice Tutorial
Lesson 01: Discrete Mathematics

1. Sets and Set Operations:
    a. Define a set.
    b. Explain the union and intersection of sets.

2. Propositional Logic:
    a. Define a proposition.
    b. What is the negation of the statement "It is raining"?

3. Predicate Logic:
    a. Distinguish between a predicate and a proposition.
    b. Give an example of a statement involving a predicate.

4. Relations:
    a. Define a relation between two sets.
    b. What is a reflexive relation?

5. Functions:
    a. Define a function.
    b. What is the difference between a one-to-one and onto function?

6. Combinatorics:
    a. What is the factorial of a non-negative integer?
    b. How many ways can you arrange the letters in the word "MATHEMATICS"?

7. Graph Theory:
    a. Define a graph.
    b. What is the degree of a vertex in a graph?

8. Number Theory:
    a. Define prime numbers.
    b. What is the greatest common divisor (GCD) of 18 and 24?

9. Counting Principles:
   a. What is the multiplication principle?
   b. Explain the concept of combinations.

10. Proof Techniques:
   a. What is mathematical induction?
   b. Provide an example of a direct proof.

Try those questions by yourself, and submit your answers to us.
We can evaluate it for you!!!!
Happy Learning!!!!

-Evaluation Team AIS Learning