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Information Technology	
ECT 113	
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Sheet 3

1. Multiple Choice Questions (MCQs)

1. What is the first step in the problem-solving process?

   a) Write the code immediately
   b) Understand the problem
   c) Design a flowchart
   d) Test the solution

2. Which of the following is not a step in problem-solving?
   a) Analyzing the problem
   b) Developing an algorithm
   c) Ignoring constraints
   d) Testing the solution

3. What is an algorithm?

   a) A programming language
   b) A sequence of logical steps to solve a problem
   c) A hardware component
   d) An operating system

4. Which symbol in a flowchart is used to represent a decision-making step?

   a) Oval
   b) Rectangle

c) Diamond
d) Arrow

5. What is the main purpose of using a flowchart?
   a) To write code
   b) To visually represent an algorithm
   c) To execute a program
   d) To design a database

6. What should be considered while understanding a problem?
   a) Inputs
   b) Outputs
   c) Constraints
   d) All of the above

7. What is the final step of problem-solving?
   a) Planning a solution
   b) Representing the solution
   c) Implementing and testing the solution
   d) Understanding the problem

2. <u>True or false:</u>

1. Problem-solving involves identifying an issue, analyzing possible solutions, and implementing the best one.
2. An algorithm is always dependent on a specific programming language.
3. The first step of problem-solving is to implement the solution directly in code.
4. Flowcharts are used to visually represent the steps of an algorithm.
5. During the problem-solving process, constraints such as time and memory limits should be ignored.
6. A flowchart can only be used for simple algorithms, not complex workflows.
7. The output of an algorithm is optional.
8. The process of testing and optimizing a solution comes after implementing the algorithm in code.

3. Problem-Solving

Draw Flowchart and Design an Algorithm for the following Problems :

1. Write a program that declares two integer variables, assigns them values, and prints their sum .
2. Write a C++ Program to convert the temperature given in degrees Celsius to degrees Fahrenheit, given the following equation: Fahrenheit = 1.8(Celsius) +32 .
3. Declare a float variable to store the radius of a circle and calculate its area using PI * r * r.
4. Write a program to swap two numbers using a temporary variable.
5. Write a program to swap two variables without using a temporary variable.
6. Read an integer from the user and prints its square.