

**National Institute of Technology, Hamirpur**  
**M.Sc. End Term – 2020**

**Subject Name:** Object Oriented Programming  
**Subject Code:** MA-615  
**Branch:** Mathematics and Scientific Computing

**Semester:** 1<sup>st</sup>  
**Full Marks:** 50  
**Time:** 2 hours

**Note: Read the questions carefully. Be precise in writing answers.**

Mandatory: (10 marks)

1. True or False:
  - a. Switch statement is a replacement of else-if ladder in all the cases.
  - b. A function which does not take any arguments, cannot return any value.
  - c. Array can be passed to functions as arguments.
  - d. There is no difference between structures and classes.
  - e. Destructors can take arguments.
  - f. Private members of base class can be inherited in derived class.
  - g. We cannot create manipulators of our own.
  - h. A file stores the data temporarily.
  - i. A private member can be inherited in private mode.
  - j. A unary operator overloading function requires one argument.

Attempt any five: (8 marks each)

1. List out the types of constructors. What is the significance of destructor?
2. Give an example of Hybrid and Hierarchical inheritance.
3. Create a class by name triangle with the three sides a, b and c as its member data. Include member functions to perform the following:
  - a. To accept the sides of triangle
  - b. To display the sides of triangle
  - c. To find whether the triangle is equilateral triangle
  - d. To find whether the triangle is an isosceles triangle
  - e. To find whether the triangle is right angled triangle
4. Modify the class matrix to perform the following:
  - a. To overload + to add two matrices
  - b. To overload – to subtract one matrix from another
  - c. To overload \* to multiply two matrices
5. Write a program to merge the data of two files and store it into new file.
6. Explain seekp() and tellp() member functions used in file handling.
7. Differentiate between parameterized and copy constructors. How to use it in private mode?
8. What do you understand by function overloading and function overriding? Give an example.