IC-1634

M.Sc. (INFORMATICS) / III Semester 2016

PAPER IT-34-OBJECT ORIENTED TECHNOLOGY

TIME: 03 hours Max Marks: 75

(Write your Roll No. on the top immediately on receipt of this question paper)

Note: Attempt any five questions. All questions carry equal marks

Q1. Explain with suitable examples

a) What are the benefits of **Object Oriented Programming**?
b) What is Scope resolution opeartor in C++? What are its applications?
c) How do structures in C and C++ differ? What is the difference between Class and Structure?
d) A friend function can't be used to overload the assignment operator =. Why?
e) Distinguish between overloaded functions and function templates. (3x5)

Q2. a) Create a class MATRIX of size m x n.
Define all possible matrix opeartions (addtion, subtration, mutliplication, transpose) on Matrix class using operator overloading functions. Define Constructor, Copy Constructor. Display content of Matrix overloading << operator. Write main function to test the same. (12)

b) What are some of the rules of operator overloading? (3)
Name the operators which can't be overloaded

Q3. a) What is recursion? Write a C++ program using recursive function to calculate factorial of a number.
b) Describe the importance of destructor. Explain its use with help of example
c) What is **this** pointer? What are the application of this pointer?
d) What is containership? How does it differ from inheritance? Give Suitable example
e) Distinguish between List and Vector Sequence Containers. (3x5)

Q4 a) Explain exception handling mechanism in C++ with a suiatble example. (3)
b) Write a function template for finding minimum value in an array. (5)
c) What is virtual base class? When do we need to make the class virtual? (3)
d) How do we write function with default arguments? What are the benefits? Explain with example (4)

Q5. a) Two files named 'Input1' and 'Input2' contain sored list of integers. Write a program that merges the content of both files (in sorted form) and writes the output to file 'Output1'. (10)

b) What is a virtual function? When is it needed? Write some rules of Virtual function. (5)

Q6. a) Create two classes USD and GBP which store the currency of US and UK. USD stores money in dollar and cents and GBP stores in pound and penny. Write a program that reads values for class objects and add one object of USD with another object of GBP.
(Hint: Use friend function to carry out addition operation. The object that stores the result is USD object.
1 GBP = 1.4 USD) (7)

b) What are **static** members (data and functions) in class? Justify the need of static members. (4)
c) What are command-line arguments? Explain with example how to use them in C++ program. (4)