Code: IT3T4

II B.Tech - I Semester – Regular/Supplementary Examinations November 2018

OOPS THROUGH C + +
(INFORMATION TECHNOLOGY)

Duration: 3 hours   Max. Marks: 70

PART – A
Answer *all* the questions.   All questions carry equal marks
$$11x\ 2 = 22\ M$$

1.
a) Write variable declaration and initialization.

b) What is function overloading?

c) What is the advantage of passing arguments by reference? Explain with example.

d) What is a friend function? What are the merits and de-merits of friend function?

e) Briefly Compare and contrast private and protected.

f) Define pure virtual function.

g) What do you know about void pointer and wild pointer?

h) List various classes available for file operations.

i) Distinguish briefly overloaded functions and function templates.

j) Write different types of string attributes.

k) How string objects are being handled?

PART – B

Answer any ***THREE*** questions. All questions carry equal marks.

$$3 \times 16 = 48 \text{ M}$$

2. a) What do you mean by function with default parameters? Explain it with programming example. 8 M

   b) What is recursive function? Write a program to calculate factorial of a number using recursion. 8 M

3. a) Write and explain various types of constructors and constructor overloading with suitable examples. 8 M

   b) What does inheritance means in C++ ? What are different forms of inheritance ? Give an example of each. 8 M

4. a) What is polymorphism? How virtual functions can be used to implement the runtime polymorphism? Explain with the help of example. 6 M

   b) Create a base class called SHAPE. Use this class to store two double type values that could be used to compute the area of figures. Derive two specific classes called Triangle and Rectangle from the base SHAPE. Add to the base class, a member function get_data() to initialize base class data members and another member function display_area() to compute and display the area of figures. Make display_area() as a virtual function and redefine this

function in the derived classes to suit their requirements.

Using these three classes, design a program that will accept dimensions of a triangle or a rectangle interactively, and display the area.

Remember the two values given as input will be treated as lengths of two sides in the case of rectangles, and as base and height in the case of triangles, and used as follows.

Area of rectangle= x * y

Area of triangle= ½ * x * y   10 M

5. a) Define a manipulator and Explain various manipulators in C++ with programming examples.   10 M

   b) Explain the class templates in C++.   6 M

6. a) Define Exception handling. Write a C++ program with Exception handling and also illustrate catching all exceptions.   8 M

   b) Discuss in detail the Standard Template Library.   8 M