**Roll No** .....

# IT - 303

## **B.E. III Semester** Examination, December 2014

## Object Oriented Programming Methodology

***Time : Three Hours***

***Maximum Marks : 70***

***Note:*** i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.

ii) All parts of each question are to be attempted at one place.

iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.

iv) Except numericals, Derivation, Design and Drawing etc.

### Unit - I

1. a) What is Object Oriented Programming (OOP)?

   b) What is run time polymorphism? How it is achieved?

   c) What is multilevel inheritance? How is it different from multiple inheritance?

   d) What are generic classes? Why are they useful? Explain with an example how these are implemented in C++.

   OR

   What is dynamic initialization of objects? Why is it needed? How is it accomplished in C++? Illustrate.

### Unit - II

2. a) When can you tell that a memory leak will occur?

   b) Explain the use of break and continue statements in switch case statements.

   c) Differentiate between declaration and definition in C++.

   d) Using the class above, define two subclasses student and professor. Student subclass displays the name and CGPA (grade points in float) and professor subclass displays the name and number of publications (int). Write a main program using polymorphism to display the data of one student and one professor.

   OR

   Describe, in brief the steps involved in object oriented analysis.

### Unit - III

3. a) Differentiate between recursion and iteration.

   b) Explain User defined data types in C++.

   c) Is the following code correct? Justify your answer

```
int intvar = 333;
int * intptr;
cout << * intptr;
```

d) Write a C++ program to prepare the mark sheet of an university examination with the following items from the keyboard:

Name of the student

Roll no.

Subject name

Subject code

Internal marks

External marks

Design a base class consisting of data members Name of the student and Roll No. The derived class consists of the data members subject name, subject code, internal marks and external marks.

OR

Differentiate and give examples to bring out the difference between

i) Default constructor and copy constructor

ii) Public and private access specifiers.

**Unit - IV**

4. a) What are abstract classes? How do you define one and how is it useful in a typical library?

b) What is dynamic binding or late binding?

c) Write down the syntax for defining interface?

d) Discuss the role of inheritance in object-oriented programming. What is public, private and protected derivation.

OR

Explain the following

i) Non public constructors

ii) Inline function

**Unit - V**

5. a) Describe the basic characteristics object-oriented programming.

b) What is meant by exceptions? How an exception is handled in C++?

c) Explain the importance of using friend function in operator overloading with the help of an example.

d) What do you mean by operator overloading? How unary and binary operators are implemented using the member and friend functions?

OR

Define the class student which has name (char name[20]) and age (int). Define the default constructor, member functions get_data ( ) for taking the name and age of the student, print ( ) for displaying the data of student.

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