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Roll No. ....

333455(33)

BE (4th Semester)

Examination, April - May, 2017

[New Scheme]

Object Oriented Concepts and Programming using C++

Time Allowed : 3 hours   *Maximum Marks :* 80

Minimum Pass Marks : 28

Note : (i)   **All** questions are compulsory. Part (a) of each unit is compulsory. Attempt any **two** parts from (b), (c) and (d) of each unit.

(ii)   The figures in the right-hand margin indicate marks.

UNIT-I

1. (a) Enumerate two operators introduced in C++ that are not valid in 'C'.   [2]

(b) What do you mean by abstraction in C++? Explain the relationship among superclass, subclass, base class and derived class.   [7]

TC-523   *(Turn Over)*

(c) Create an abstract class called 'shape'. Derive two subclasses 'circle' and 'triangle' from it. Using pointer of 'shape' class, fill the required members and display the area.   [7]

(d) Describe how an object of a class, that contains five objects of other classes, is created.   [7]

UNIT-II

2. (a) Identify the errors, if any, in the following C++ statements :

(i)   int public = private = 1000

(ii)   cin >> x, y   [2]

(b) Explain with an example the code, how a common friend function is used to exchange the private values of two classes.   [7]

(c) Explain the visibility modes of data members : 'public', 'private' and 'protected' with exemplary program fragments.   [7]

(d) Differentiate between local and global variables in C++.   [7]

UNIT-III

3. (a) Enumerate the functions of memory management operators in C++ ; 'new', 'delete'.   [2]

TC-523   *(Continued)*

(b) What is meant by 'this' pointer? Write a C++ program to demonstrate how 'this' pointer is used to access the member data of a class. [7]

(c) Write a program to count the number of objects created and destroyed using constructor and destructor functions. The objects should be identified by a unique ID, which should be mentioned while creation and destruction of the object. [7]

(d) What are the different types of parameter passing methods supported in C++? Provide a comparative account between 'pass by pointer' and 'pass by reference' methods. [7]

UNIT-IV

4. (a) Give one example of each for type conversion from : [2]

    (a) Basic type to class type

    (b) Class type to basic type

(b) Differentiate between overloading and over-riding. How can the problems related to over-riding be solved? [7]

(c) Explain how logical operators can be used for overloading in C++. [7]

(d) How can the data members of a base class be initialized under multiple inheritance? [7]

UNIT-V

5. (a) Enumerate the functionality of read ( ) and seekp (). [2]

(b) Define and declare a class template for reading two data items from the keyboard and to find the sum of given data items. [7]

(c) Write a program that reads a text file and creates another file identical to the input file, except that every sequence of consecutive blank spaces is replaced by a single space. [7]

(d) Illustrate with a C++ code, how an exception handler is defined and invoked. [7]

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