(Please write your Exam Roll No.)

Exam Roll No. .....

END TERM EXAMINATION

FOURTH SEMESTER [B.TECH] MAY- JUNE 2017

Paper Code: ETCS-210 **Subject: Object Oriented Programming**

Time: 3 Hours **Maximum Marks: 75**

Note: Attempt any five questions including Q.No1 which is compulsory.

(2.5x10=25)

Q1 Attempt the following:-
(a) Differentiate between pointer and reference variables.
(b) What are empty classes? Can instances of empty class be created?
(c) Differentiate between default and parameterized constructors.
(d) What is Garbage Collection in C++.
(e) Why are virtual functions used?
(f) What is containership? Explain with an example.
(g) Define static objects with example.
(h) How constructors and destructors are executed in multilevel inheritance.
(i) Define Reusability, how C++ supports Reusability?
(j) Differentiate function overloading and function overriding.

Q2 (a) Explain the characteristics of Object-oriented language, with appropriate examples. (8)
(b) Explain the use of copy constructor with example program. (4.5)

Q3 (a) Write a program to show the use of friend function and friend class. (7.5)
(b) What are Destructors? Write a program to show the order in which local objects are destructed. (5)

Q4 (a) Create a class, which keeps track of the number of its instances, use static data member, constructors and destructors to maintain updated information about active objects. (7.5)
(b) How to achieve dynamic memory allocation in C++? Explain with a program. (5)

Q5 (a) How base class member functions can be involved in a derived class if the derived class also has member function with the same name? Explain with example. (8.5)
(b) Differentiate public, protected and private access specifiers. (4)

Q6 (a) What is generic programming? Write its advantages? (5)
(b) What is the difference between C & C++. Show & explain the usage of new & delete keyword. (4+3.5=7.5)

Q7 (a) What are Abstract classes? (3)
(b) Write a program having STUDENT as an abstract class and create many derived classes such as ENGINEERING, SCIENCE, MEDICAL, etc. from the STUDENT class. Create their objects and process them. (9.5)

Q8 (a) What are exceptions? How reliability is affected by exception handling? (4)
(b) Write an interactive program to compute the square root of a number. The input value must be tested for validity. If it is negative, the user defined function my_sqrt() should raise an exception. (8.5)

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