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**3E1654**

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**B. Tech III Sem. (Main/Back) Exam. Jan. 2016  
Computer Engineering & Information Technology  
3CS5A & 3IT4A Object Oriented Programming  
Common for EE & EX**

**Time: 3 Hours**

**Maximum Marks: 80  
Min. Passing Marks: 24**

*Instructions to Candidates:*

*Attempt any five questions, selecting one question from each unit. All questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

*Units of quantities used/calculated must be stated clearly.*

*Use of following supporting material is permitted during examination.*

1. NIL

2. NIL

**UNIT-I**

- Q.1 (a) State the important features of object oriented programming. Compare the object oriented programming with structured programming. [8]
- (b) Explain the syntax for accessing members of structures using structure variables with help of suitable example. [8]

**OR**

- Q.1 (a) Write a program that demonstrates a function that uses a pointer to a structure variable as a parameter. [8]
- (b) Explain following with their syntax:
- (i) Structures as function arguments. [4]
  - (ii) Structures as user defined types. [4]

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UNIT-II

- Q.2 (a) Explain the concepts of classes and objects in OOPs. [4]  
(b) What is a friend function? Write a program to define member function outside a class using scope resolution operator. [12]

OR

- Q.2 (a) What is constructor? How to invoke a constructor function? With an example distinguish between parameterized constructor and copy constructor. [8]  
(b) Describe the importance of destructor function. Write a program of dynamic memory management using **new & delete** operators. [8]

UNIT-III

- Q.3 (a) What are the restrictions and limitations for operator overloading? [6]  
(b) List the operators that cannot be overloaded. Define a complete class by name distance with feet and inches as data member and overload += operator and two objects. [10]

OR

- Q.3 (a) Define operator overloading. How many arguments are required to overload unary and binary operators, respectively? [8]  
(b) What is conversion function? Write a program using two classes and show how to convert data one type to another. [8]

UNIT-IV

- Q.4 (a) What does inheritance mean in C++? How can we make private member inheritable without modifying. [8]  
(b) How to call virtual function with same name but different parameters. [8]

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OR

- Q.4 (a) What is a virtual function? When do we make a virtual function "Pure" Explain with example. [8]  
(b) Write short note on following:  
(i) Dynamic Binding [4]  
(ii) Virtual Destructors [4]

UNIT-V

- Q.5 (a) What is meant by multiple inheritances? Write a C++ program for demonstrating multiple inheritances. [8]  
(b) Write a program to illustrate the concepts of virtual base classes in multiple inheritances. [8]

OR

- Q.5 (a) What is template class and template function? Use suitable example to explain them. [8]  
(b) Write short note on following with example:  
(i) Pointer to class and class members. [4]  
(ii) Exception handling [4]

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