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**3E1654**

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**B.Tech. III Semester (Main/Back) Examination, Dec.- 2016**
**Computer Sc. & Engg.**
**3CS5A Object Oriented Programming**
**EE,EX,CS,IT**

Time : 3 Hours

Maximum Marks : 80
Min. Passing Marks : 26

*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.*

### Unit - I

1.  a)  What are the difference between homogeneous and heterogeneous data type? What are the features of structure?                                         **(8)**

    b)  Write any program to pass the structure to a function. Explain each and every step in detail.                                                         **(8)**

**OR**

1.  Create a structure to specify data of customers, in a bank. The data to be stored is: Account number, Name, Balance in account. Assume maximum of 20 customers in the bank.

    a)  Write a function to print the account number and name of each customer with balance below Rs. 100.

    b)  If a customer request for withdrawal or deposit, it is given in the form :

        Acct. no, amount, code (1 for deposit, 0 for withdrawal) write a program to give a message, "The balance is insufficient for specified withdrawal".   **(16)**

### Unit - II

2.  a)  How do structures in C and C++ differ?                                   **(8)**

    b)  Explain container class and proxy classes in detail.                      **(8)**

2.  a)  Describe the mechanism of accessing data members and member functions in the following case :

    i)  Inside the main program.

    ii)  Inside the member function of the same class.                    (10)

    b)  What are object? How are they created?                            (6)

## Unit - III

3.  a)  What is operator overloading? Why is it necessary to overload an operator?
                                                                          (8)

    b)  Differentiate unary and binary operators.                        (8)

### OR

3.  a)  What is an operator function? Describe the syntax of an operator function.(8)

    b)  When is a friend function compulsory? Give an example with detail.  (8)

## Unit - IV

4.  a)  What is inheritance? What are the different types of inheritance? Give an example of each.                                                         (10)

    b)  Explain the concept of base class and derived class.              (6)

### OR

4.  a)  When do we make a abstract class? Explain in detail.              (8)

    b)  Describe how an object of a class that contains object of other classes created?
                                                                          (8)

## Unit - V

5.  a)  What is a virtual base class? Explain.                            (8)

    b)  What are the difference between error and exception? Explain the keywords used in exception handling.                                               (8)

### OR

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Write short note on : (any **two**)

   i)    Templates

   ii)   Pointer to classes

   iii)   Multiple inheritance.             (8×2=16)

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