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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Fourth Semester, B.E. - Computer Science and Engineering

Semester End Examination; June/July - 2015

Object Oriented Programming with C ++

Time: 3 hrs

Max. Marks: 100

Note: i) Answer **FIVE** full questions, selecting **ONE** full question from each **Unit**.

ii) Assume suitable missing data if any.

UNIT - I

1. a. List the important features of object oriented programming. 4
- b. Explain the steps to create a new-data type using structures and how the new data types are used in application programs. 10
- c. Define function overloading. Illustrate function overloading through add function, which adds two integers, two float numbers. 6
2. a. Define inline function. Explain with an example. 5
- b. Define friend member function and friend non-member function. Explain with an example. 7
- c. Write a C++ program to create a class called complex with the data members real part, imaginary part and define the member functions for the following.
 - i) To input data 8
 - ii) Function to add two complex numbers
 - iii) To output the contents of the object

UNIT – II

3. a. Write a C++ program to demonstrate the usage of new and delete operators for a single variable as well as an array. 6
- b. Explain set-new-handler() function. 4
- c. Define constructors and destructors. Explain the different types of constructors with examples. 10
4. a. Define Inheritance. List and explain different types of inheritance. 6
- b. Illustrate any one of the ambiguity encountered in multiple inheritance and how it is resolved. 6
- c. Write a C++ program to create a base class called Geofig and from this derive two derived classes called rectangle and Triangle. Both of these two derived classes should have get_data(), Compute _ area() and display() member functions. Choose appropriate data members. 8

UNIT - III

5. a. Define the following with syntax and an example : 10
 i) virtual function ii) pure virtual function iii) Abstract base class.
- b. Write a C++ program to create a class called Person having the name, age, sex, occupation as its data members get_Data() and put_Data() as its member functions. Create two new classes called student and Employee as the derived classes of person class. Add the suitable members to the derived classes. In base class declare the member functions as virtual. 10
6. a. Explain how text data can be extracted from the input stream. 7
 b. Explain open() and seekfp() functions with examples. 6
 c. Explain various flags and functions associated with error handling. 7

UNIT - IV

7. a. Define operator overloading. List the rules of operator overloading. 7
 b. Write a C++ Program to overload the following operators. 8
 i) unary minus (-) ii) unary plus (+)
- c. Explain how subscript [] operator is overloaded. 5
8. a. What is the need of using friend function to overload the operator? Explain with an example. 7
 b. With an example show the differences between the operator overloading function for increment and decrement operator in postfix and prefix notation. 8
 c. Write C++ program to create a class called string with data members cstr and length. Overload == operator for comparing two strings. 5

UNIT - V

- 9 a. Define a function template with the syntax. Write a C++ program to swap two members, these numbers can be of type integer, float and double using class template. 7
 b. Explain the standard template library STL. 4
 c. Write a C++ program to implement a stack for integers and float numbers. 9
- 10a. Write a C++ program to sort a list of integers, and float numbers by bubble sort technique using template function. 10
- b. Define exception handling? Explain the C++ style solution for handling exceptions. 10

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