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

(An Autonomous Institution affiliated to VTU, Belgaum)

Second Semester, Master of Computer Applications (MCA)

Semester End Examination; June - 2016

Object Oriented Programming using C++

Time: 3 hrs   *Max. Marks: 100*

Note: Answer **FIVE** full questions, selecting **ONE** full question from each unit.

UNIT - I

1 a. Explain the following terms with examples :

   i) Class   ii) Inheritance   iii) Polymorphism   **10**

   b. Write short notes on :

   i) Data types in C++   ii) String manipulators in C++   **10**

2 a. Explain the method of default argument passing with an example and list the important point of default arguments.   **10**

   b. With an example, explain the constant and volatile qualifiers.   **6**

   c. Bring out the difference between inline function and functions.   **4**

UNIT - II

3 a. Define class and mention the class with the following details :

   class employee

   {

   int eno; char name[30]; float sal;

   public: void accept ( );   **10**

   void display ( ) ;

   };

   Accept the details and display the same, define member function outside the class. Compute net salary of each employee.

   b. Explain the different types of constructors and destructors. With an example program, demonstrate parameterized constructor.   **10**

4 a. With an example, explain how to access the local and global variable of same name.   **4**

   b. "Constructor can be overloaded" if yes justify your answer with an example.   **10**

   c. Explain the static data members and members functions.   **6**

UNIT - III

5 a. Using the class template, illustrate bubble sort.   **10**

   b. Write a C++ program to overload the + operator (binary operation) of two complex numbers using friend functions.   **10**

6 a. Write a C++ program to overload the binary operator (+) of two complex numbers using member functions. 10

   b. Write a C++ program to overload the unary operator. 10

UNIT - IV

7 a. List out the important points of virtual functions and bring out the difference between virtual and pure virtual functions. 5

   b. Explain the single inheritance using constructor to pass the parameter from derived class to base class with an example. 5

   c. Write a C++ program to create a class STUDENT with the data members USN, Name, Age, M1, M2 and M3. Using single inheritance, create a class MARKS to find average marks for each student and display the details using the object of the derived class. 10

8 a. How do you pass arguments to base class constructor? Give supporting illustration. 10

   b. Mention the different types of inheritance with different example block diagrams. 10

UNIT - V

9 a. Write a C++ program to overload <<, >> for performing addition of two numbers. 10

   b. Write a C++ program to create a file of integer's number and open the same file, separate the odd and even number to separate file and display all of them. 10

10 a. What are IO stream? Sketch a neat diagram of the stream class hierarchy. 10

   b. With an example, explain containers and vectors. 10

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