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P.E.S. College of Engineering, Mandya - 571 401
(An Autonomous Institution affiliated to VTU, Belgaum)
Third Semester, B.E. – Information Science and Engineering
Semester End Examination; Dec. - 2014
Object Oriented Programming and JAVA

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. Describe the following characteristics of object oriented programming: 6

    i) Encapsulation   ii) Polymorphism   ii) Inheritance

  b. What is function overloading? Write a C++ programme to define three overloaded functions area ( ),   8

    to find area of rectangle, circle and trapezium.

  c. Explain function call by value and reference with an example and compare them.   6

2 a. Explain inline function with an example.   6

  b. What you mean by visibility mode of a member of a class? Explain different visibility modes.   4

  c. Differentiate between class and object. Write a C++ programme to define a class called TIME with   10

    hour, minute and second as data members and read ( ), display ( ) and add ( ) as member functions.

Unit - II

3 a. Explain allocation and deallocation of memory dynamically in C++ with an example.   4

  b. What are constructor and destructor? Explain the order of execution of constructor and destructor   8

    with an example.

  c. What is inheritance? Explain different types of inheritance.   4

  d. Explain with an example, deriving a base class as public.   4

4 a. Explain with an example deriving base class as protected.   6

  b. What is function overriding? Explain with an example.   6

  c. Explain multiple and multilevel inheritance with an example.   8

Unit - III

5 a. What are virtual functions? What is the need of virtual functions? Explain with an example.   6

  b. What is pure virtual function? Why it is required? Explain with an example.   8

  c. Explain virtual constructor and destructor with an example.   6

6 a. What is the use of operator overloading? Write a programme to overload the following operators   10

    (i) Pre – increment   (ii) Post decrement.

  b. Write a C++ programme to add two complex numbers by overloading the operator +. Also overload   10

    >> and << operators for reading and displaying the complex numbers. Explain the condition when

    you overload the operators << and >> operators.

Unit - IV

7 a.	Explain the stream class hierarchy with neat block diagram.	6
b.	Explain random access to files using stream in C++.	4
c.	What is function template? Write a programme to create a template function for bubble sort and demonstrate the sorting of integers and characters.	10
8 a.	Explain different functions to manipulate data in a file using file pointer.	8
b.	What is exception handling? Write a C++ programme to demonstrate the "try", "throw" and "catch" keywords for implementing exception handling.	10
c.	Give the limitations of exception handling.	2

Unit - V

9 a.	List and explain the features of Java.	10
b.	Explain and write a programme in java to demonstrate bitwise operators.	6
c.	Explain jump statement with an example.	4
10 a.	Explain the following: i) This keyword in Java ii) Finalize method iii) Use of final with inheritance iv) Inner class.	20

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