U.S.N ☐☐☐☐☐☐☐☐☐☐

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 - 2016/Jan - 2017

OOP'S with JAVA

Time: 3 hrs   *Max. Marks: 100*

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

UNIT - I

1 a.	Explain the steps involved, when $x = y$ is executed during runtime.	5
b.	Write a program to describe the working of return by reference in functions.	5
c.	Define inline functions. List the steps involved in specifying inline functions. State the advantage and disadvantage of using inline function.	5
d.	Explain static member functions with an example. Can a static member function take '*this*' pointer as a formal argument?	5
2 a.	Give the syntax of a function. Explain function overloading with an example.	7
b.	Discuss mutable data member with an example.	4
c.	Explain the following with examples : i) Namespaces ii) Arrow operator iii) Friend member functions.	9

UNIT - II

3 a.	Under what conditions does static memory allocation become unsuitable? What is dynamic memory allocation? How is it different from static memory allocation?	5
b.	Describe with a program use of different types of constructors.	10
c.	Write a program to discuss functions overriding.	5
4 a.	Explain the syntax of *delete* operator for; i) De-allocating memory that has been allocated for a single variable ii) De-allocating memory that has been allocated for an array With a program.	5
b.	Why should the formal argument of a copy constructor be a reference object? Write a program to demonstrate the use of copy constructor.	8
c.	What is inheritance? List different types of inheritance. Write a program to explain a simple inheritance.	7

UNIT - III

5 a.	Explain the need of virtual function with an example.	5
b.	Define pure virtual function. Write a program to describe the use of pure virtual function.	5
c.	Describe any five rules to be followed while overloading operators with example.	10

6 a.	Illustrate with a program virtual destructors and virtual constructors.	10
b.	Write a program in C++ to overload increment, decrement operator in both the prefix as well as the postfix notation.	10

UNIT - IV

7 a.	Define streams in C++. Show with a block diagram, library classes that handle streams in C++.	5
b.	Write a program to insert characters into output streams using the insertion operator.	5
c.	Write the syntax for creating a template for a generic function. Also write a program to demonstrate the use of template for the function "Swap".	5
d.	Define exception. List the three component of exception handling.	5
8 a.	Write a program in C++ to extract characters from input streams using the extraction operator.	5
b.	What are class templates? What is the need for class templates? How are they created? Explain with a suitable program.	10
c.	Describe with a program to handle arithmetic exception with *try* and *catch* block.	5

UNIT - V

9 a.	What is byte code in Java? List and explain the features of Java.	10
b.	List different types of Bitwise and Boolean logical operators.	6
c.	Explain the use of '*for*' loop with an example.	4
10 a.	Write a program to describe the different uses of '*super*' keyword in Java.	5
b.	Write a program in Java to accept 10 integer numbers from command line and sort them using bubble sort.	8
c.	Compare method overriding and method overloading in Java.	7

∗ ∗ ∗