



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

(An Autonomous Institution affiliated to VTU, Belagavi)

**Third Semester, B.E. - Information Science and Engineering**

**Semester End Examination; Dec - 2017 / Jan - 2018**

**OOP with Java**

*Time: 3 hrs*

*Max. Marks: 100*

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

### UNIT - I

- |      |  |   |
|------|--|---|
| 1 a. | Compare how object oriented programming is different from procedure oriented programming.  | 4 |
| b.   | Illustrate with an example program in C++, how default values for formal arguments of function are applied in C++? Explain.                              | 8 |
| c.   | Create a class called BOOK with five data members and two member functions to read and print book details. Write a program in C++ to implement the same. | 8 |
| 2 a. | What are Inline functions? Explain with an example program in C++, how Inline function is different from member function of a class?                     | 8 |
| b.   | Explain the following with an example :  | 8 |
|      | i) Reference variable      ii) class      iii) function overloading      iv) structure.  |   |
| c.   | With an example snippet code, how console input and output in C++ are handled.   | 4 |

### UNIT - II

- |      |   |    |
|------|---|----|
| 3 a. | Differentiate between static allocation of memory and dynamic allocation of memory.   | 4  |
| b.   | What are constructors and destructors? List out their special characteristics.  | 8  |
| c.   | Explain different access specifiers in C++ with an example program.   | 8  |
| 4 a. | Create a base class STAFF (Name, Id) and derived classes TEACHING and TECHNICAL. TEACHING class having specialized data member; specialization and TECHNICAL class having specialized data member; skill. Write an overriding member functions; Display( ) of base class and derived classes to display the read data members in a proper format. | 10 |
| b.   | Explain different kinds of Inheritance with an example snippet code for each.   | 10 |

### UNIT - III

- |      |  |    |
|------|--|----|
| 5 a. | Explain the following with a snippet code:   |    |
|      | i) Virtual function      ii) Pure virtual function.  | 10 |
|      | iii) Virtual constructor      iv) Virtual destructor   |    |
| b.   | Explain operator overloading concept with an example program overloading any two binary operators. | 10 |

- 6 a. Explain the mechanism of virtual function with respect to compiler interpretation. 10
- b. Write a program in C++ to overload increment and decrement operators (prefix and postfix). 10

**UNIT - IV**

- 7 a. With a neat diagram explain the class hierarchy of streams in C++. 10
- b. What are text files and binary files? Give examples (any two) for each. 4
- c. List out the limitations of Exception Handling. 6
- 8 a. Write C++ program to sort a list of integer numbers and floating point numbers by creating function templates (apply selection sorting technique to sort). 10
- b. Illustrate with an example program to use try/ throw/catch constructs of C++. 10

**UNIT - V**

- 9 a. Explain any five buzzwords of Java. 10
- b. With an example snippet code, explain arrays in Java. Write all different alternatives of declaring an array. 10
- 10 a. Create class called STACK with an integer array and Top of the Stack (TOS) as data members. Write methods PUSH( ) and POP( ) members to add/ remove an element from stack. Write Java program to implement the operations of STACK. 10
- b. List out the applications of super keyword in Java. 4
- c. With an example Java program, explain how final keyword can be used with inheritance? 6

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