U.S.N.										

B. M. S. College of Engineering, Bengaluru - 560019

Autonomous Institute Affiliated to VTU

March - 2021 Semester End Main Examinations

Programme: B.E. **Semester : III**
Branch : Computer Science and Engineering **Duration: 3 hrs.**
Course Code: 19CS3PCOOJ **Max Marks: 100**
Course: Object Oriented Java Programming **Date: 26.03.2021**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may suitably assumed.

UNIT - I

1. a) Explain the structure of a Java program and describe the benefits of bytecode with an example. **06**

   b) Demonstrate type conversion, casting and automatic type promotion in expressions with an example program. **06**

   c) Write an interactive Java program that reads elements of a one-dimensional array, sorts the elements in ascending order, and displays them. **08**

UNIT-II

2. a) Write a Java program to add two integer numbers which are accepted as command line arguments. **04**

   b) Develop a Java program that creates a class Box with data members-width, height and depth. Include any two parameterized constructors and a method to calculate and print the volume. **06**

   c) Write a Java program to illustrate the implementation Fixed stack class. **10**

UNIT - III

3. a) Demonstrate any two uses of super keyword with an example program. **04**

   b) Create an abstract class Shape that includes a method to display area. Apply inheritance and implement shapes like Square, Rectangle and Circle. **08**

   c) Illustrate the following with an example program for each. **08**
      (i) Any two uses of final keyword
      (ii) Dynamic method dispatch

UNIT – IV

4.	a)	Write a Java program which defines two interfaces Sub and Add with appropriate methods. Class A1 should include both interfaces and display the appropriate results.	**06**
	b)	Write a Java program that takes a number as command line argument. Check if the number is less than 10 or greater than 50, then generate the Exception if out of the above range. It displays the square of number otherwise.	**06**
	c)	Create a package called AB_BANK having a class called Account (methods- deposit and withdraw). Implement a simple class called Savings (outside package AB_BANK) that makes use of classes/ capabilities provided by AB_BANK. Mention the procedure.	**08**

OR

5.	a)	Write a Java program to enter two numbers through command line. If the numbers are not entered, it should generate an Exception. Divide the first number by the second number and if necessary generate the arithmetic exception.	**06**
	b)	Write a Java program for demonstration of multiple inheritance in Java.	**06**
	c)	Explain generics. Write a program to create Java class Dimension- instance variable (width, height and depth) and a method to display. Demonstrate with integer, float and char data types.	**08**

UNIT - V

6.	a)	Write a Java program that implements a multithreaded program that creates three threads. First thread generates a random integer every 1 second and if the value is even, second thread computes the square of the number and prints. If the value is odd the third thread will print the value of cube of the number.	**10**
	b)	Write a Java program to illustrate all the methods of Mouse Listener Interface.	**10**

OR

7.	a)	Explain how Java supports inter- thread communication mechanism. Illustrate the same with producer consumer example program.	**10**
	b)	Discuss on Working with Frame Windows. Write a Java program to demonstrate drawing lines, rectangle, arc, circle and polygon.	**10**

*****