

Reg.No.

24006

Velammal College of Engineering and Technology

Viraganoor, Madurai – 625 009

(Autonomous)

B.E. / B.Tech. End Semester Examinations November 2024

Third Semester

Time : 3 Hours

Regulation 2021

Max. Marks 100

**21CS203 – Object Oriented Programming
(Common to CSE and IT branches)**

Answer ALL Questions

PART-A (10 x 2 = 20 Marks)

1. How Java supports platform independence?
2. Demonstrate Inheritance with an example.
3. List any four built-in exceptions.
4. Is String immutable or final in Java? Illustrate with an example.
5. What are the various states of a thread?
6. Differentiate multi-threading and multi-tasking.
7. How the frames are created in Java Swing?
8. Illustrate the Graphics method in java to draw the String "HelloWorld" from the coordinates(100,200).
9. Define Generics and list down the advantages of Generics.
10. Why Generic Types with Primitive Types Cannot be instantiated.

Part – B (5 x 13 = 65 marks)

11. a) Create an abstract class Shape with methods calc_area and calc_volume. Derive four classes Sphere(radius), Cone(radius, height) Cylinder(radius, height), and Box(length, breadth,height) from it. Calculate area and volume of all. (Use Method overriding).

OR

- b) Write a java class called "Student" with name, and rollno. Write a class "Result" to get Marks of 3 subjects and another class "Sports" to get the points obtained in sports. Calculate the total Marks and displays the result (pass or fail) with points obtained in sports for three students using inheritance and constructor.

12. a) How to Create Custom Exception Class in Java? Explain with an example.

OR

- b) Illustrate String Buffer class and its methods with an appropriate example.

13. a) Build an simple Arithmetic calculator to perform the operations of Addition, Subtraction, Multiplication and Division using different threads.

OR

- b) Write a Java program to create a text file. Read the set of sentences from the text file and check the following: Number of vowels, Number of Words, Number of characters and produce a formatted report.

14. a) Describe in detail about the different layout in Java Swing GUI.

OR

- b) Demonstrate the JList and JComboBox its Constructors and Methods with a suitable example.

15. a) List the various Collection classes used in java with examples. Explain any two of them.

OR

- b) Illustrate the Generic class and Generic Method in java with an suitable example.

Part – C (1 x 15 marks)

16. a) Develop a new Java GUI application to convert miles to kilometers when pressing the "Convert!" button. Note that you need to implement the ActionListener interface and override the actionPerformed() method. Also, note that 1 mile is equal to 1.609 kilometers.

OR

- b) Build a GUI using Java to display the net salary of an employee and use JDBC connectivity to display employee details from database. Also, create the employee database using SQL.