Register No.: ……………………………… Name: ……………………………………………………………….

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

THIRD SEMESTER B.TECH DEGREE EXAMINATION (S), MAY 2022
COMPUTER SCIENCE AND ENGINEERING
(2020 SCHEME)

Course Code:	**20CST205**
Course Name:	**Object Oriented Programming Using Java**
Max. Marks:	**100** **Duration: 3 Hours**

PART A

(Answer all questions. Each question carries 3 marks)

1. Explain about any THREE basic object-oriented concepts. Support the same with necessary examples.
2. Write notes on any THREE components of a use case diagram. Support the same with an example use case diagram.
3. List out any SIX primitive data types and their uses.
4. Demonstrate with the help syntax and a pseudocode of a countdown, the working of 'while' loop.
5. List out the various access specifiers in Java and specify the visibility .
6. Explain the terms: 'try', 'catch', 'throw', 'throws', and 'finally' in Java exception handling.
7. Write notes on any THREE special string operations.
8. Write short notes on any THREE standard collection classes.
9. Explain about the two key features of Swing.
10. Write THREE constructors used for 'JLabel' in Swing.

PART B

(Answer one full question from each module, each question carries 14 marks)

MODULE I

11. a) With the help of meaningful examples, explain each of the following types of relations among classes. Only class diagram and an explanation is required in each case.
    (a) Single inheritance
    (b) Multiple inheritance   (7)
    (c) Association
    (d) Aggregation
    (e) Dependency

    b) Explain any one type of Interaction Diagram. List out the components of an activity diagram and write notes on it. Support the concepts with necessary examples. (7)

OR

12. a) What is Java Virtual Machine. Explain its working with the help of necessary block diagrams. (7)

     b) Write notes on Java applet. Differentiate between Java applet and Java application. (7)

MODULE II

13. a) With the help of a short code, compute the distance light travels in a specific no: of days (Hint: approximate speed of light in miles per second = 186000, no of days can be given as 100). Mention the data type used and also the need of it. (5)

     b) With the help of necessary pseudo codes, explain any 3 each of the arithmetic, logical and bitwise operators. (9)

OR

14. a) Explain in detail about methods in Java. Write a Java code that includes a method to add squares of two numbers. (6)

     b) List out the at least THREE uses of 'super' keyword in java. Support each one with necessary coding examples. (8)

MODULE III

15. a) Write a Java program to divide two integer numbers that uses multiple 'catch' clauses to deal with exceptions like divide by zero and not a valid number. (7)

     b) Explain 'interface' in Java. Show how it is implemented with necessary pseudocode. Also mention the difference between a class and an interface. (7)

OR

16. a) Write notes on reading console input and writing console output. Write a Java program to read sequence of characters from keyboard and display them until character 'q' is pressed use BufferedReader class for the same. (7)

     b) Write a Java program to get numerators and denominators into an array and perform division in sequence. Show how the following exceptions can get handled 'array index out of bound' and 'division by zero' (7)

MODULE IV

17. a) Explain with necessary examples, any FOUR string buffer methods. (8)

     b) Differentiate between collection interface and list interface. With a 2-line description, list out any THREE methods defined by each interface (6)

OR

18. a) Explain in detail the delegation event model for event handling in Java. Illustrate how mouse click event can be captured (7)

     b) Write short notes on the Java 'Main thread'. Write a Java program to initialize a main thread, call it , pause it using a sleep() method also set a name and call that name and display it. (7)

MODULE V

19. a) Write notes on the containers and components of Swing. (7)

     b) Explain Any TWO Swing Buttons in detail. Support the concepts with necessary code snippets. (7)

OR

20. a) Explain with the help of a neat Diagram, the JDBC architecture. Explain each components of the architecture. (7)

    b) Write a Java program to create an employee table with the following fields (Employee name, Designation, Department and Salary) and perform insert operations using JDBC (7)

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