

Register No.: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

THIRD SEMESTER B.TECH DEGREE EXAMINATION (S), FEBRUARY 2023**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. Outline the reasons why Java programs are known as “Write Once and Run Anywhere” programs.
2. Illustrate the features of a class diagram with an example.
3. Explain the concept of method overloading with an example.
4. What is the use of **final** keyword in Java.
5. Write a code to perform arithmetic division in Java, handle the condition if the user input the denominator value ZERO.
6. Narrate the use of package in Java.
7. Comment the output for the following Java code
class Stringcomparison
{
public static void main(String args[])
{
String s1="Sachin";
String s2="Sachin";
String s3=new String("Sachin");
String s4="Saurav";
System.out.println(s1.equals(s2));
System.out.println(s1.equals(s3));
System.out.println(s1.equals(s4));
}
}
8. What are the different possible methods to create user defined thread class in Java.
9. With an example, state the basic differences between the execution of the methods ‘executeQuery’ and ‘executeUpdate’.
10. Write the syntax for J Text and J Button.

PART B

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

MODULE I

11. a) Construct a Use Case Diagram for an online music playing system (7)
- b) Describe in detail any THREE Object Oriented Programming principles. Illustrate it with suitable examples (7)

OR

12. a) Explain the role of JRE and JDK in Java environment. (6)
- b) Construct a Class diagram for the following Java code (8)

```
public class Employee
{
    private String name;
    private double payRate;
    private final int EMPLOYEE_ID;
    private static int nextID = 1000;
    public static final double STARTING_PAY_RATE = 7.75;
    public Employee(String name) {
        this.name = name;
        EMPLOYEE_ID = getNextID();
        payRate = STARTING_PAY_RATE;
    }
    public Employee(String name, double startingPay) {
        this.name = name;
        EMPLOYEE_ID = getNextID();
        payRate = startingPay;
    }
    public String getName() { return name; }
    public int getEmployeeID() { return EMPLOYEE_ID; }
    public double getPayRate() { return payRate; }
    public void changeName(String newName) { name = newName; }
    public void changePayRate(double newRate) { payRate = newRate; }
    public static int getNextID() {
        int id = nextID;
        nextID++;
        return id;
    }
}
```

MODULE II

13. a) Write the Java code for the following problem statement:
Create a class with a method that prints "This is parent class" and its subclass with another method that prints "This is child class". Now, create an object for each of the class and call (9)
1 - method of parent class by object of parent class
2 - method of child class by object of child class
3 - method of parent class by object of child class
- b) Write a java program to add two numbers using command line arguments. (5)

OR

14. a) Comment the need of inheritance in Java and the different types of inheritance that the Java support with suitable example (8)
- b) Predict the output for the following Java code (6)
- ```
class Bike9{
 final int speedlimit=90;
 void run(){
 speedlimit=400;
 }
 public static void main(String args[]){
 Bike9 obj=new Bike9();
 obj.run();
 }
}
```
- If error been generated comment the type of error with the reason and provide the correct Java code for the above.

**MODULE III**

15. a) Develop a java package named Smallest package, with a class Small which returns the smallest number from the entered two numbers. Import this package in another class TestSmall and use to find the Smallest number entered by the user (8)
- b) Write two subclasses for the 'InputStream' and 'OutputStream' classes in Java and specify its uses (6)

**OR**

16. a) Consider a scenario in Java programming where one has to define two classes in two different packages. Let "Man" and "Woman" be the two classes which need to be defined in packages "pack1" and "pack2" respectively. Develop a Java program that would implement the desired concept. (Assume appropriate class members for "Man" and "Woman" classes) (8)
- b) Explain in detail the Exception handling mechanism in Java (6)

**MODULE IV**

17. a) What is Thread Synchronization? With an example illustrate the working of any one technique used for Thread synchronization in Java. (7)
- b) What package in Java is used to handle the String functions? Write any THREE string handling functions used in Java with suitable examples. (7)

**OR**

18. a) Develop a Java program consisting of two threads "Thread1" and "Thread2" which displays two different messages continuously. The thread should be implemented using the Runnable Interface. (7)
- b) With a neat diagram demonstrate the life cycle of a Thread in Java. (7)

**MODULE V**

19. a) Compare the different features of awt and swing packages. (7)
- b) Develop an AWT program that allows to input an amount in Rupees and display it in Dollars (Assume 1 Dollar = 70 Rupees). (7)

**OR**

20. a) Illustrate the role of JDBC driver in the database handling process. What are the different types of JDBC driver available? (4)
- b) Write a Java program to store the marks of students corresponding to three subjects in database. The program should provide provision for the following. (10)
- i. Create a table in database corresponding to a particular class.
  - ii. Find student who topped the class.
  - iii. Find the average class marks for a given subject.

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