Enrolment No: _____

Name of Student: _____

Department/ School: _____

END TERM EXAMINATION EVEN SEMESTER 2023-24

COURSE CODE : CSET109 **MAX. DURATION: 2 HR**

COURSE TITLE: OBJECT ORIENTED PROGRAMMING USING JAVA

COURSE CREDIT: 6 **TOTAL MARKS: 40**

GENERAL INSTRUCTIONS: -

1. Do not write anything on the question paper except **name, enrolment number** and ***department/school.***
2. *Carrying mobile phone, smart watch and any other non-permissible materials in the examination hall is an act of* **UFM.**

Question 1. What are the different types of Constructors in Java? Describe each type with an example and find the output of the following program **(1+1+1 Marks)**

```
import java.util.*;
class Student
{
int rollno;
String name;
String batch;
String group;
String course;

Student (String course1)
{
Scanner sc=new Scanner(System.in);
rollno=sc.nextInt();
name=sc.next();
```

```
batch="B1";
group="G1";
course=course1;
}
void Display()
{
System.out.println(rollno+" "+name+" "+batch+" "+group+" "+course);
}
}
class Main
{
public static void main(String arg[])
{
Student S=new Student();
S.Display();
}
}
```

Question 2. Given below are two strings and find the output of the following functions/code **(3 Marks)**

```
String s1="Bennett";
String s2="University";
```

a. `System.out.println(s1.concat(s2).substring(2));`

b. `System.out.println(s2.substring(s1.indexOf('t'),s2.indexOf('t')));`

c.
```
for(int i=0;i<s1.length();i++)
{
System.out.println(s1.substring(i));
}
```

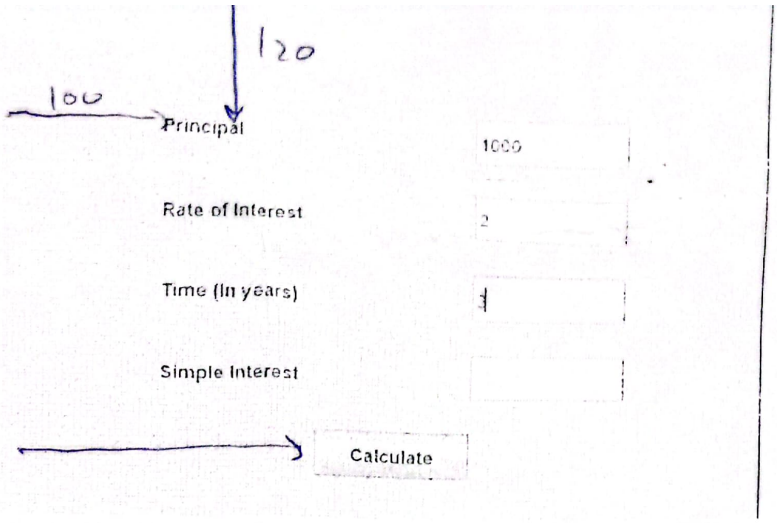
Question 3. Differentiate the following terms with Example **(3 Marks)**

a. Compile Time Polymorphism and Run Time Polymorphism

b. Boxing and Unboxing

c. doGet() and doPost()

Question 4. Write a Swing-based Program to calculate Simple Interest. The expected graphical view of the program is given below. **(3 Marks)**



Question 5. What is a thread? Draw and describe the life cycle of a thread with all related functions. Write a program using Thread Class or Runnable Interface. **(1+3+2 Marks)**

Question 6. Which fundamental concept in object-oriented programming (OOP), allows us to hide the implementation details of a class and expose only the essential features of the class to the outside world? Explain the concept and also discuss how it can be achieved through two varied methods with suitable examples. **(5 Marks)**

Question 7. Suppose you have an ArrayList of Person objects, where each object has a name and an age. You want to find the person with the highest age and print their name. Write the java code to achieve the desired outcome. **(3 Marks)**

Questions 8. We have an "Employee_db" database in mysql. This database contains an Employee table with {empid:integer, name:char(30), salary:double} fields. Write the Java code segments for **(5 marks)**

a. To perform database connectivity using jdbc
b. To perform Insert Operation
c. To perform Delete Operation
d. To perform Search Operation
e. To perform Update Operation

Question 9. What is session management in JSP/Servlets? What are the different methods of Session management describe their properties. Write a code to perform session management using cookies. Write code segment to store and retrieve cookies in JSP. **(1+1+2 Marks)**

Question 10. a) Describe the significance/use of each keyword of exception handling.

b) Write a program to define a class named Employee with attributes Name and Salary and take them as input from the user. Then, create a user-defined exception class

NegativeSalaryException class to handle negative and zero salary Exception with the display message "Invalid Salary".

- If the salary is valid, then display it
- If the salary is invalid, then show an exception message and set the salary to a default value of *10000*, and display it.

(2+3 Marks)