UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Online End Semester Examination, May 2021

Course: Advanced Programming Using Java   **Semester: IV**
Program: B.TECH.(CSE), LL.B. (Hons.) spec. Cyber Laws / IPR   **Time: 3 hrs.**
Course Code: CSEG2015   **Max. Marks: 100**

SECTION A (30 marks)
1. **Each Question will carry 5 marks.**
2. **Instruction: Complete the Statement/Select the correct answer(s)**

S.No.	Question	CO
Q1	Write a Java Program to find the Area of Rectangle with the following specifications a. No input from the user b. length=35 and breadth=40 c. class name is AreaOfRectangle d. class to have only void main function	CO1
Q2	Differentiate abstract class and interface in JAVA.	CO2
Q3	List the various steps in creating the packages and list any 5 in-build predefined packages in JAVA.	CO2
Q4	Mention the use of static keyword in class, function and variable.	CO2
Q5	Specify and state the purpose of all the exception handlers in Java.	CO3
Q6	Specify the parameter that are passed in the getConnection() method. Give the purpose and an example for the same.	CO4

SECTION B (50 marks)
1. **Each Question will carry 10 marks.**
2. **Instruction: Write short/brief notes.**

Q7	Write the java program (program1.java) for the below given problem**.** Program to calculate net salary taking the following data. - Input: empname, basic - Process: DA=50%of basic , HRA=25%of basic ,CCA=Rs240 The gross salary is the sum of DA, HRA and CCA. The net salary is calculated by adding the gross with the allowance. If the gross salary is higher than 10000 add allowance of Rs.500.Give the commands to compile and run the java program.	CO1

Q8	Discuss the need of constructors and destructors in OOPS? Explain its types and how it's implemented in JAVA with an example.	CO1

Q9	Implement the below given pseudocode using Inheritance.
	
	``
	Declare class Figure
	{
	        Declare dim1, dim2;
	        Figure(double a, double b) { Assign a to dim1, b to dim2 }
	        double area() { Display Area for Figure is undefined return 0; }
	}
	Declare class Rectangle extends Figure
	{
	        Rectangle(double a, double b) { Call super class constructor by passing a, b }
	        double area() { Calculate dim1 * dim2 and return the result }
	}
	Declare class Triangle extends Figure
	{
	        Triangle(double a, double b) { Call super class constructor by passing a, b }
	        double area() { Calculate (dim1 * dim2)/2 and return the result }
	}
	Declare class FindAreas
	{
	        public static void main(String args[]) {
	        Create Object for Rectangle r = new Rectangle(9, 5);
	        Create Object for Triangle t = new Triangle(10, 8);
	        Display the results
	}
	``
		CO2

Q10	a) Define Exceptions.(2 Marks) b) Write a program in Java to display the names and roll numbers of students. Initialize respective array variables for 10 students. Handle ArrayIndexOutOfBoundsExeption, so that any such problem doesn't cause illegal termination of program. Demonstrate the program with ArrayIndexOutofBoundException.(8 Marks)	CO3
Q11	Draw and discuss the life cycle of a thread. **(OR)** Write a program to implement the concept of threading by extending Thread Class and creating two Thread object and sleep for 500 milli seconds after printing the i value followed with your name that is iterated from 1-5	CO3

SECTION-C (20 marks) 1. **Each Question will carry 20 marks.** 2. **Instruction: Write long answer.**		

Q12	a) List any 4 popular SQL databases in the Market.(2 Marks)
	b) State the steps to connect to the database and Java program. (8 Marks).
	c) Write a JDBC Java Program using the below given JDBC Connection.(10 Marks)
	   - Host string = jdbc:derby://localhost:1527/SalesDB
	   - Username=\<sapid\>
	   - Password=\<sapid\>
	
	Assume the StudentDB has a table Marks with the data as given below. Write the program to display the employee details like Name, Roll No and Average marks by taking the user input Roll No. Execute SQL query against the database to display the details of all the students in the table.
	
	OR
	
	a) Compare static and dynamic web pages with an example. (5 Marks)
	b) Define Servlet? Sketch the lifecycle of a Servlet. (5 Marks)
	c) Write a Servlet Program to implement the servlet using the Servlet interface to display your BIODATA.(10 Marks).
		CO4