(Please write your Enrollment Number) Enrollment No:

END TERM EXAMINATION

(CBCS)(SUBJECTIVE TYPE)

B. Tech (CSAI) , 2nd Semester

(AUGUST, 2022)

Subject Code: BAI 102	Subject: OOPS using JAVA
Time :3 Hours	Maximum Marks :60

Note:Q. 1 is compulsory. Attempt one question each from the Units I, II, III & IV.

Q1			(5*4=20)

	(a)	Give the output of the following code
		public class XYZ{
		public static void main(){
		String s1 = "abc";
		String s2 = "def";
		String s3 = s2;
		System.out.println(s1+s2+s3);
		}
		}
		Write a function to print Floyd's triangle.
		1
		2 3
		4 5 6
		7 8 9 10	

	(b)	Create a class Shapes (color, area), Derive in class Circle (radius) and Square (side). Create 2 constructors in each class to initialize the variables to 1) initial values and 2)user entered values. Show constructor chaining within the same class and in different classes.	
	(c)	Declare an interface INTER_A with a method area(Double d). Implement the same for finding the area of a circle and a square using 2 different classes. Print the areas.	
	(d)	Explain the various access modifiers used in Java. What is a package and what is its use in Java?	
		UNIT-I	
Q2		Explain how java is a Robust and architecture neutral language?Write a program to print the Fibonacci series (0 1 1 2 3 5 8 13 21...) till 'n' numbers using 1) recursion and 2) iteration. Which is a better method and why?	(10)
Q3		Differentiate between a class variable, instance variable and local variable. WAP to create a class Students having RollNo, Name, Stream, Address. Use class variables to automatically assign unique roll nos whenever a new student object is instantiated. Create the records for 3 students by reading the details from the user and print them. Find out the class/instance/local variables in your program.	(10)
		UNIT-II	
Q4		Differentiate between early binding and late binding. Create a super class Vehicle(Company, color, price, readV(), print()), derive classes 1) Cars(Name, Model, readC(), print()) and 2) Bike(Name, readB(), print()). Override the print functions of derived classes to print the details of 2-2 objects of Car and Bike type each.	(10)
Q5		What are the various forms of inheritance in Java? Explain each with example. Why is multiple inheritance not allowed in java? Give example. How can it be implemented in java? Give example	(10)

	UNIT-III	
Q6	What are the two ways to use Checked Exceptions in java? WAP to read 5 integers in an array. Print the max and min in the array. Write a single try block that can handle ArrayOutOfBoundsException and a NegativeNumberException (User defined exception that should be thrown if a negative number is entered in the array). Write a finally block to print the array contents along with maximum and minimum elements.	(10)
Q7	What is serialization and deserialization? WAP to create a class Employee with EmpNo, Name, Designation and Salary. Create an array of 10 objects of type Employee. Read the details from keyboard and store them in a file. Also, read the details from the same file and print them on the screen.	(10)
	UNIT-IV	
Q8	Explain different stages in the life cycle of a thread. WAP to calculate the average of 1000 integers stored in an array using 4 thread running in parallel. Print the final result.	(10)
Q9	What are the different stages in the life cycle of an applet? Create an applet that has 1) A greeting message "Hello all at IGDTUW", 2) Label Name, followed by text field to enter it, 3) Label Phone, followed by text field to read mobile no, 4) Submit button that prints "thank You" when pressed.	(10)