Reg. No. : | | | | | | | | | | | | |

Question Paper Code: U6E03

B.E./B.Tech. DEGREE EXAMINATION, APRIL / MAY 2025

Sixth Semester

Artificial Intelligence & Data Science

21UAD603- THINKING IN JAVA

(Regulations 2021)

Duration: Three hours | Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1.	Write a Java Program to print Fibonacci series.	CO2-App
2.	Write a Java program to print first n natural numbers.	CO2-App
3.	Draw the types of inheritance with an example	CO2-App
4.	Write a Java program to explain the working of switch statement.	CO2-App
5.	Point out the conditions to be satisfied while declaring abstract classes	CO1-U
6.	What is constructor overloading?	CO1-U
7.	Define an exception.	CO1-U
8.	What is use of try block?	CO1-U
9.	Write a Java program to remove leading and trailing whitespace from a given string.	CO2-App
10.	Write a Java program to check if a given string contains only uppercase letters.	CO2-App

PART – B (5 x 16= 80 Marks)

11.	(a)	(i) Write a Java program to check whether a given number is palindrome or not?	CO2-App	(8)
		(ii) Write a program using Java Tokens for any application.	CO2-App	(8)
		Or		
	(b)	(i) List various concepts of object-oriented programming paradigm. Elucidate Java garbage collection mechanism.	CO2-App	(8)
		(ii) Write a Java program that uses arrays to store and manipulate student grades. Include functions to calculate average, find the highest/lowest grades and display the result.	CO2-App	(8)

12.	(a)	Apply encapsulation by making certain attributes of the Book class private and providing public getter and setter methods. Discuss how abstraction is achieved through encapsulation, highlighting the advantages of hiding internal implementation details	CO2- App	(16)
		Or		
	(b)	(i) How to create objects? Does Java support object destruction? Justify your answer.	CO2- App	(8)
		(ii) Write a Java program to find the sum of the squares of the diagonal elements of a square matrix.	CO2-App	(8)
13.	(a)	What is inheritance in Java? Explain its types and benefits.	CO1- U	(16)
		Or		
	(b)	(i) What do you mean by static class and static method? Can we make an instance of an abstract class? Justify your answer with an example?	CO1- U	(8)
		(ii) What are the various types of exceptions available in Java? Also discuss on how they are handled?	CO1- U	(8)
14.	(a)	(i) Explain Creating Packages and Accessing a Package with examples.	CO1- U	(8)
		(ii) How Packages differ from Interfaces? Explain it with a suitable example program to calculate student marks statement		(8)
		Or		
	(b)	How do ArrayList and LinkedList differ in terms of their implementation and performance? Provide a scenario where one is preferred over the other.	CO1- U	(16)
15.	(a)	Write a Java program that demonstrates the usage of different String constructors by creating strings from character arrays, byte arrays, and other String objects	CO1- U	(16)
		Or		
	(b)	Develop a Java program that extracts characters from a given string using the charAt() method and creates substrings using the substring() method based on user input.	CO1- U	(16)