



End Term (Even) Semester Examination May-June 2025

Roll no.....

B.Tech IV sem
Programming in Java
TCS 408

Time: 3 hour

Maximum Marks: 100

Note:

- (i) All the questions are compulsory.
- (ii) Answer any two sub questions from a, b and c in each main question.
- (iii) Total marks for each question is 20 (twenty).
- (iv) Each sub-question carries 10 marks.

Q1.

(2X10=20 Marks) CO1,CO2,CO3

- a. Implement a java program to run multiple threads simultaneously by using Runnable interface.?
- b. What is a Java package and how is it used? What are the advantages of Packages in Java?
- c. Draw the internal architecture of JVM and explain different JVM memory areas.

Q2.

(2X10=20 Marks) CO2,CO3

- a. Explain the use of user defined Custom exceptions in java. With the help of a real case Scenario create your own Custom Exception and implement it using a java code.
- b. Implement a Java program to create a class Called Strdemo with following members:
 - Data Members**
 - String str1
 - String str2
 - Method Members**
 - Constructor to initialize value of str1 and str2
 - void countvowel() method will count number of vowels in both string
 - void countchar() method will count number of uppercase letters in both string

In main method create object of class Strdemo and perform the above task
- c. Implement a java program to accept and print the student details during runtime. The details will include name, rollno and course. The program should raise an exception if user inputs incorrect data. The entered value should meet the following conditions:
 - (i) First letter of student name should be in uppercase.
 - (ii) Student rollno should be an integer between 100 and 200.

If the above conditions are not met then the application should raise an exception and execute.



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Q3.

(2X10=20 Marks) CO2,CO3

- a. Explain different states in the lifecycle of a Thread with the help of a proper example? What is the use of wait() and notify() method.
- b. How inter thread communication is established in Java? With the help of a proper java code explain Producer consumer problem in multithreading.
- c. How multiple inheritance is incorporated in java? Explain with the help of a proper java code also explain the use of default method in java.

Q4.

(2X10=20 Marks) CO3,CO4

- a. Discuss various access modifiers in java? How access modifiers affect the visibility of a member in different access locations? Comment with suitable java code in support of your answer.
- b. Explain the use of Listeners in Java? Explain any two types of listeners with the help of proper java code.
- c. Construct a GUI program using Swing, to develop an application that receives a string in one text field, and count number of vowels in a string and returns it in another text field, when the button named "CountVowel" is clicked. When the button named "Reset" is clicked it will reset the value of textfield one and Textfield two. When the button named "Exit" is clicked it will close the application.

Enter String

Result

Q5.

(2X10=20 Marks) CO5,CO6

- a. Implement a JDBC program to first check for a duplicate RollNo in a database with table Stud (Name, Age, RollNo, Marks, Sem), and then insert a new record if it doesn't already exist.
- b. Implement a java program that demonstrates writing to a file and reading from a file using different java filestreams.
- c. Explain the need of collection framework in java? Implement List, iterator, Set, ArrayList with the help of java program