PMAS Arid Agriculture University Rawalpindi

University Institute of Information Technology

Final Term Examination-Fall-2023
BSSE/BSCS- 5th Semester (M/E)
CS-432 Modern Programming Languages,
(Theory)

Registration No._____

Total Time: 105 Minutes
Maximum Points: 20

Note: Attempt All Questions. All Questions carry equal Marks

Question 01: Create a Java application using jFrameForm with Swing controls , jLabels, jButtons and jTextFiled. This form needs to interact with a relational database (MS SQL Server or MySQL). The application should be able to **Insert New Records** into a table named **'tblStudent**(StudentID, StudentName,StudentRegNo, StudentClass)'.** The database is located on the UIITDBServer with User Id= uiitAdmin and Password=Lab123cisco. Finally, include error handling and demonstrate the connection setup, insertion, retrieval, and updating of records in your solution.

Question 02: Consider the following code, highlight the errors if any. Finally, show the output from the following code segment

```
import java.util.regex.*;
public class RegexTest {
   public static void main(String args[]) {
      String pattern = "[a-z]+";
      String text = "Today Is Final Paper of MPL";
      Pattern p = Pattern.compile(pattern);
      Matcher m = p.matcher(text);
      while (m.find()) {
         System.out.print(text.substring(m.start(), m.end()) + "*");
      }
   }
}
```

Question 03: Java is the first language to support the concept of Multithreading, allowing multiple threads to run simultaneously. What are the various methods supported in Java to define the Thread? Also, define the different methods involved during the Life Cycle of a Thread (Draw a labeled diagram too). Write Java Code to show the implementation of Threads using anyone supported method of Thread creation in Java.

Question 04: Discuss the following Java Programming Concepts Using suitable Programming Examples
   a. ArrayList Methods **Add**(), **Remove**(), **RemoveAll**(), **Size**()
   b. FileWriter vs Scanner
   c. Write Code for **JavaInputDialog** Box to enter your Age in Days, then Display your Age in Years and Months and output the Results Using using **MessageDialog** Box
   d. Create a client-server application using RMI (Remote Method Invocation). The server should provide a service that returns the dollar rate based on the client's entered country name. The client will input the country name, and the server will respond with the corresponding dollar rate.

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(Practical)

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Total Time: 45 Minutes
Maximum Points: 20

Question 01: Develop a client-server application using **S**ocket **P**rogramming. On the Server Side, there is a library database with multiple tables for library management. One of these tables is for books, containing fields such as book ID, title, author name, and publisher name. The client needs to search for book details, either by ID or by name. The server will accept the request from the client and respond accordingly. When a request is received from the client, the server will search the database. If the data is found, it will be sent to the client; otherwise, an error message will be displayed. Write code for required database connectivity and handle exceptions.

10 Marks

Question 02: You have been assigned a Semester Project in Modern Programming Languages Course. Discuss your Project Title, the Tasks you have completed in the Project as your part. Also, discuss the database tables you have designed for your semester project.

10 Marks