

```

public static void main(String[] args) {
//JDBC variables for opening, closing, and managing
connection
Connection connection = null;
PreparedStatement preparedStatement = null;
ResultSet resultSet = null
    // Register JDBC driver
Class.forName("com.mysql.cj.jdbc.Driver");
    // Open a connection
Line 1
// Execute a query
String sqlQuery = "SELECT * FROM users";
Line 2
Line 3
// Process the result set
    while (resultSet.next()) {
        int id = resultSet.getInt("id");
        String username = resultSet.getString("username");
        String password = resultSet.getString("password");
        System.out.println("ID: " + id + ", Username: " +
username + ", Password: " + password);
    }
}

```

Roll No.

Total Pages : 04

MCAQ/D-23**24032**

ADVANCES IN JAVA

MCA-20-35(i)

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. 1 is compulsory. All questions carry equal marks.

1. Differentiate the following :

- (i) Swing and AWT
- (ii) Request Dispatcher and Send Redirect
- (iii) Servlet Context and Servlet Config
- (iv) Include Directive and Include Tag
- (v) JDBC Drivers.

Unit I

- 2. Explain different types of Layout with pseudo code. What is the default layout for Applet ?
- 3. Provide examples of key AWT components and describe their roles in constructing user interfaces. Discuss event handling in AWT and illustrate how it differs from event handling in Swing.

Unit II

4. Explain the concept of session tracking in the context of advanced Java web applications. Highlight the different mechanisms available for session tracking and discuss their advantages and disadvantages.
5. Describe the purpose and functionality of the Filter API in the Java Servlets framework. Discuss, how filters can be used to intercept requests and responses in a web application. Provide examples of common use cases where filters play a crucial role.

Unit III

6. Provide examples of how custom tags can be created and utilized in JSP pages, emphasizing their ability to encapsulate complex logic and improve the overall structure of the code.
7. Explain the significance and functionality of JSP Expression Language (EL) in Java web development. Discuss how JSP EL differs from traditional scriptlets and what advantages it offers in terms of code readability and maintainability. Provide examples of situations where using JSP EL is preferred over other methods in JSP pages.

Unit IV

8.
 - (a) Explore the essential classes and interfaces in the JDBC (Java Database Connectivity) API, detailing their roles and functionalities in database interaction.
 - (b) Compare and contrast the three major JDBC approaches : Statement, PreparedStatement and Callable Statement. Highlighting scenarios where each is preferred.
9.
 - (a) Examine the architecture of JDBC (Java Database Connectivity) and its role in facilitating database interactions in Java applications.
 - (b) Find the missing line in below code snippet :

```
import java.sql.Connection;  
import java.sql.DriverManager;  
import java.sql.PreparedStatement;  
import java.sql.ResultSet;  
import java.sql.SQLException;  
public class JdbcExample {  
    //JDBC URL, username, and password of MySQL  
    server  
    private static final String JDBC_URL =  
        "jdbc:mysql://localhost:3306/mydatabase";  
    private static final String USER = "your_username";  
    private static final String PASSWORD =  
        "your_password";
```