Ans. Keys for Test – 3 JDBC Total Marks – 51 (Theory carry 2 marks each, Programs carry 5 marks each)

1. Why do we need JDBC?

    From a java Program to interact with a database
    to send SQL commands to the database and to
    interact with the database, we need JDBC concept.

2. What is driver?

    To establish a connection from java program to
    the database there is concept called driver.
     Driver is used for establishing a connection
    from java program to the database.
    Without Driver we can't make a connection from
    java program to the database.

3. Do we have the driver in JDK?
    (A) Yes   **(B) No**

4. Write a simple JDBC program to create a table and insert 10 records to the database?

```java
import java.sql.*;

class D
{
    public static void main(String[] args) throws Exception
    {
        Class.forName("oracle.jdbc.driver.OracleDriver");
        Connection con = DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:XE", "system","admin");
        Statement stmt = con.createStatement();
```

```java
        String sql1 = "CREATE TABLE PERSON(ID NUMBER, NAME VARCHAR2(90), AGE NUMBER)";
        String sql2 = "INSERT INTO PERSON VALUES(1, 'ABC', 22)";
        String sql3 = "INSERT INTO PERSON VALUES(2, 'XYZ', 25)";
        String sql4 = "INSERT INTO PERSON VALUES(3, 'RAMU', 20)";
        String sql5 = "INSERT INTO PERSON VALUES(4, 'VIJAY', 21)";
        String sql6 = "INSERT INTO PERSON VALUES(5, 'KIRAN', 29)";
        String sql7 = "INSERT INTO PERSON VALUES(6, 'BABU', 29)";
        String sql8 = "INSERT INTO PERSON VALUES(7, 'NAVEEN', 24)";
        String sql9 = "INSERT INTO PERSON VALUES(8, 'MANU', 26)";
        String sql10 = "INSERT INTO PERSON VALUES(9, 'ANU', 24)";
        String sql11 = "INSERT INTO PERSON VALUES(10, 'VINU', 29)";
        stmt.execute(sql1);
        stmt.execute(sql2);
        stmt.execute(sql3);
        stmt.execute(sql4);
        stmt.execute(sql5);
        stmt.execute(sql6);
        stmt.execute(sql7);
        stmt.execute(sql8);
        stmt.execute(sql9);
        stmt.execute(sql10);
        stmt.execute(sql11;
        System.out.println("done");
    }
}
```

5. Write a JDBC program to get the user data using command line arguments and insert it to the database?

```java
import java.sql.*;
class E
{
    public static void main(String[] args) throws Exception
    {
```

```java
        if(args.length < 3)
        {
            System.out.println("Please supply 3 command line args");
            return;
        }
        String id = args[0];
        String name = args[1];
        String age = args[2];
", '" + name +"'," + age +")";
        Class.forName("oracle.jdbc.driver.OracleDriver");
        Connection con = DriverManager.getConnection("jdbc:oracle:thi
n:@localhost:1521:XE", "system","admin");
        Statement stmt = con.createStatement();
      stmt.execute(sql);
        System.out.println("done");
    }
}
```

6. Write a JDBC program to get the user data using Scanner class and insert it to the database?

```java
import java.sql.*;

import java.util.Scanner;

class F

{

    public static void main(String[] args) throws Exception

    {
```

```java
        Scanner sc = new Scanner(System.in);

        System.out.println("Please enter id");

        String id = sc.next();

        System.out.println("Please enter name");

        String name = sc.next();

        System.out.println("Please enter age");

        String age = sc.next();

        String sql = "INSERT INTO PERSON VALUES(" + id + ", '" + name
 +"'," + age +")";

        Class.forName("oracle.jdbc.driver.OracleDriver");

        Connection con = DriverManager.getConnection("jdbc:oracle:thi
n:@localhost:1521:XE", "system","admin");

        Statement stmt = con.createStatement();

        stmt.execute(sql);

        System.out.println("done");

    }
}
```

7. Write a JDBC program to get the user data using do while loop and insert it to the database?

```java
import java.sql.*;
import java.util.Scanner;
class G
{
    public static void main(String[] args) throws Exception
```

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```java
    {
        Class.forName("oracle.jdbc.driver.OracleDriver");
        Connection con = DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:XE", "system","admin");
        Statement stmt = con.createStatement();
        Scanner sc = new Scanner(System.in);//creating the scanner object
        String id, name, age, sql;
        do
        {
            System.out.println("Please enter id");
            id = sc.next();
            System.out.println("Please enter name");
            name = sc.next();
            System.out.println("Please enter age");
            age = sc.next();
            sql = "INSERT INTO PERSON VALUES(" + id + ", '" + name +"'," + age +")";
            stmt.execute(sql);
            System.out.println("do you want to insert one more(yes/no)?");
        }
        while ("yes".equalsIgnoreCase(sc.next()));
        System.out.println("done");
    }
}
```

8. Write a JDBC program to read the data from a file and insert it to the database?

```java
import java.sql.*;
import java.io.*;//to interact with the file system
```

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```java
class H
{
    public static void main(String[] args) throws Exception
    {
        Class.forName("oracle.jdbc.driver.OracleDriver");
        Connection con = DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:XE", "system","admin");
        Statement stmt = con.createStatement();
        FileReader fin = new FileReader("data.txt");
        BufferedReader bin = new BufferedReader(fin);
        String record = bin.readLine();
        String id, name, age, sql, data[];
        while(record != null)
        {
            data = record.split(";");
            id = data[0].trim();
            name = data[1].trim();
            age = data[2].trim();
            sql = "INSERT INTO PERSON VALUES(" + id + ", '" + name +"','" + age +")";
            stmt.execute(sql);
            record = bin.readLine();
        }
        System.out.println("done");
    }
}
```

Example data.txt

126;ramu;24
127;ravi;28
128;anu;26
129;pavan;24
130;ramana;25

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9. Write a JDBC program to select all the records from the database?

```java
import java.sql.*;

class M1
{
    public static void main(String[] args) throws Exception
    {
        Class.forName("oracle.jdbc.driver.OracleDriver");
        Connection con = DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:XE", "system","admin");
        Statement stmt = con.createStatement();
        String sql = "SELECT * FROM PERSON";
        ResultSet rs = stmt.executeQuery(sql);
        while(rs.next())
        {
            System.out.print(rs.getInt("id") + ", ");
            System.out.print(rs.getString("name") + ", ");
            System.out.print(rs.getInt("age") + ", ");
            System.out.println();
        }
        System.out.println("done");
    }
}
```

10. Write a JDBC program to select the records from the database using ResultSetMetaData?

```java
import java.sql.*;

class M7
{
    public static void main(String[] args) throws Exception
    {
        Class.forName("oracle.jdbc.driver.OracleDriver");
```

```java
        Connection con = DriverManager.getConnection("jdbc:oracle:thi
n:@localhost:1521:XE", "system","admin");
        Statement stmt = con.createStatement();
        //we are selecting only two columns
        //giving aliasing name for the columns
        String sql = "SELECT id p_id, age person_age FROM PERSON";
        ResultSet rs = stmt.executeQuery(sql);
        ResultSetMetaData rsmd = rs.getMetaData();
        System.out.println(rsmd.getColumnCount());
        System.out.println(rsmd.getColumnName(1));
        System.out.println(rsmd.getColumnName(2));
        while(rs.next())
        {
            System.out.print(rs.getString(1) + ", ");
            System.out.print(rs.getString(2) + ", ");
            System.out.println();
        }
        System.out.println("done");
    }
}
```

11. What Write a standard JDBC program by using try catch blocks?

```java
import java.sql.DriverManager;
import java.sql.SQLException;
import java.sql.Connection;
import java.sql.Statement;
class M1
{
    public static void main(String[] args)
    {
        try
        {
            Class.forName("oracle.jdbc.driver.OracleDriver");
        }
```

```java
        catch (ClassNotFoundException ex)
        {
            ex.printStackTrace();
        }
        Connection con = null;
        Statement stmt = null;
        try
        {
            String url = "jdbc:oracle:thin:@localhost:1521:XE";
            String un = "system";
            String pw = "admin";
            con = DriverManager.getConnection(url, un, pw);
            stmt = con.createStatement();
            String sql = "INSERT INTO PERSON VALUES(21, 'MANOHAR', 35)
";

            stmt.execute(sql);
        }
        catch (SQLException ex)
        {
            ex.printStackTrace();
        }
        finally
        {
            try
            {
                if(stmt != null)
                {
                    stmt.close();
                    stmt = null;
                }
            }
            catch (SQLException ex)
            {
                ex.printStackTrace();
```

```
            }
            try
            {
                if(con != null)
                {
                    con.close();
                    con = null;
                }
            }
            catch (SQLException ex)
            {
                ex.printStackTrace();
            }
        }
        System.out.println("done");
    }
}
```

12. Write a standard JDBC program using properties concept?

```
import java.sql.DriverManager;
import java.sql.SQLException;
import java.sql.Connection;
import java.sql.Statement;
import java.sql.ResultSet;
import java.sql.ResultSetMetaData;
import java.io.FileReader;
import java.io.IOException;
import java.util.Properties;
class M4
{
    public static void main(String[] args)
    {
```

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```java
        Properties pr = new Properties();
        try(FileReader fin = new FileReader("db.properties"))
        {
            pr.load(fin);
        }
        catch (IOException ex)
        {
            ex.printStackTrace();
        }
        String driver = pr.getProperty("driverClassName");
        String url = pr.getProperty("url");
        String un = pr.getProperty("username");
        String pw = pr.getProperty("password");
        try
        {
            Class.forName("oracle.jdbc.driver.OracleDriver");
        }
        catch (ClassNotFoundException ex)
        {
            ex.printStackTrace();
        }
        String sql = "SELECT * FROM PERSON";
        try(Connection con = DriverManager.getConnection(url, un, pw)
 ;
            Statement stmt = con.createStatement();
            ResultSet rs = stmt.executeQuery(sql)) //JDK 1.7
        {
        ResultSetMetaData rsmd = rs.getMetaData();
        int cols = rsmd.getColumnCount();
        for (int i = 1; i <= cols; i++)
        {
            System.out.print(rsmd.getColumnName(i) + "\t");
        }
        System.out.println();
```

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```java
            System.out.println("--------------------");
            while(rs.next())
            {
                for (int i = 1; i <= cols; i++)
                {
                    System.out.print(rs.getString(i) + "\t");
                }
                System.out.println();
            }
        }
        catch (SQLException ex)
        {
            ex.printStackTrace();
        }
        System.out.println("done");
    }
}
```

db.properties file

```
driverClassName=oracle.jdbc.driver.OracleDriver
url=jdbc:oracle:thin:@localhost:1521:XE
username=system
password=admin
```