UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, Dec 2020

Course: Object oriented Programming   **Semester: III**
Program: B.Tech CS (CCVT+ IT Infra+ BAO+ G&G)
Time 03 hrs.
Course Code: CSEG2016   **Max. Marks: 100**

Instructions:

SECTION A

- **Each Question will carry 5 Marks**
- **Instruction: Complete the statement / Select the correct answer(s)**

S. No.		**Marks**	**CO**

Q 1	Given:
	``
	1. class Programmer {
	2. Programmer test() { return this; }
	3. }
	4. class JavaProgrammer extends Programmer {
	5. // insert code here
	6. }
	``
	
	Which, inserted at line 5, will compile? (Choose all that apply.)
	A. Programmer test() { return this; }
	B. JavaProgrammer test() { return this; }
	C. Object test() { return this; }
	D. int test() { return 1; }
	E. int test(int y) { return 1; }
	F. Object test(int z) { return this; }
		5	**CO1**

Q 2	Given the following Code:
	``
	1. public interface Demo{
	2. public void doAThing(String thing){}
	3. }
	
	1. public class Test implements Demo{
	2. pubic void doAThing(String msg){}
	3. }
	
	1. public class A{
	2. public Demo doit(){
	3. //code
	4. }
	5.
	6. public String execute(){
	7. //code
	8. }
	9. }
	
	1. public class B extends A{
	2. public Test doit(){
	3. //code
	``
		5	**CO2**

	4. } 5. 6. public Object execute(){ 7. //code 8. } 9. } Which of the following Options are correct? A. Compilation will succeed for all classes and interfaces. B. Compilation of class B will fail because of an error in line 2. C. Compilation of class B will fail because of an error in line 6. D. Compilation of class Test will fail because of an error in line 2.		
| Q 3 | ```
1. class Test1 {
2. public void process() { System.out.print("A,"); }
3. class Test2 extends Test1 {
4. public void process() throws IOException {
5. super.process();
6. System.out.print("B,");
7. throw new IOException();
8. }
9. public static void main(String[] args) {
10.try { new Test2().process(); }
11.catch (IOException e) { System.out.println("Exception"); }}
```<br><br>What is the result?<br>A.  Exception<br>B. A,B,Exception<br>C. Compilation fails because of an error in line 10.<br>D. Compilation fails because of an error in line 4. | **5** | **CO3** |
| Q 4 | **i)** When we ---------------------- interface we can extend another class as well, but if we ------------------------class we cannot extend any other class because java does not allow multiple inheritance.

ii) When you call --------------------, main thread internally calls -------------------- method to start newly created Thread.

iii) ---------------------- is used as a keyword against the variable, but not against method declaration in MultiThreading. | **5** | **CO3** |
| Q 5 | **i)** ---------------- cursor can be used to process from the beginning of the ResultSet to the end of it and is default type.<br><br>**ii) Given**<br>```
1. import java.sql.*;
2. public class PreparedStatementDemo {
3. public static void main(String[] args) {
4.      try{
5.          Class.forName("com.mysql.jdbc.Driver);
6.          Connection conn ;
7.conn=DriverManager.getConnection("jdbc:mysql://localhost:3306/jdbc","root","1234");
8. System.out.println("Connection Successful");
9. PreparedStatement  stmt=conn. ------------------("delete from demo where rollno=?");
10.          stmt.setInt(1, 50);
```<br>(lines 9 shown in bold) | **1+2+2** | **CO4** |

```
11.              int m=stmt.----------------;
12.              System.out.println(m+ " record deleted");
13.              conn.close(); }
14.           catch(Exception e) {
15.               System.out.println(e);}}}
```

At Line 9 and 11 what are the names of the methods called?
------------------------- and -------------------------

iii) ----------------- package contains Collections in Java and -------------------method deletes all the elements from invoking collection.

Q 6	**i)** -------------------------- Session Tracking technique can be used in Servlets to store Client se information while avoiding any impact due to users web browser configuration. **ii)** The Web server that executes the servlet creates an ---------------------- object and passes this to the servlet's service method(which in turn passes it to doGet and doPost) **iii)** Three scripting element of JSP are:----------, ------------ and ---------------	**1+1+3**	**CO5**

- **SECTION B**
- **Each question will carry 10 marks**
- **Instruction: Write short / brief notes**

Q7	**i)** Explain the Class Loader Subsystem of JVM in detail. **ii)** A class Telcall calculates the monthly phone bill of a consumer. Some of the members of the class are given below: *Class name:* Data members/instance variable: phno (phone Number), sname(subscriber Name) n(number of calls made) and amt (bill amount). *Member function/methods:* TelCall() : Parameterized constructor to assign values to data members. Void compute( ) : to calculate the phone bill amount base on the slabs given below. void display( ) : to display the details in the specified format. Number of calls Rate 1 – 100 Rs. 500/- rental charge only 101 – 200 Rs 1.00 per call + rental charge 201-300 Rs. 1.20 per call + rental charge	**3 + 7**	**CO1**
Q8	**i)** Explain Life Cycle of JSP. **ii)** Write a Program to show how Cookies are used for Session Tracking in Java Servlets.	**4+6**	**CO5**
Q9	**i)** Demonstrate how checked exceptions are propagated. **ii)** Write a program to prompt a question, what is your name? If answer is correct in first attempt print "Welcome Name", otherwise given another chance, if answer is correct in second attempt print "OK" otherwise sorry.	**5+5**	**CO3**

Q10	**i)** Define thread synchronization. Enlist methods used for implementing Thread Synchronization in Java. **ii)** Write a program to connect to MYSQL database and fetch the data from the Table Emp in database Employee having columns empno, ename and salary by making use of Statement Interface.	5+5	CO4
Q11	Package act as a container for classes & other subordinate packages. Because of the interplay between packages & classes, Java addresses four categories of visibility for class members. What are these categories? Demonstrate each category with suitable examples. **OR** Write a program to create a class named Shape. This class has three sub-classes Circle, Triangle and Square. Each class has two member functions named draw () and erase (). Create these using runtime polymorphism concepts.	10	CO2

SECTION B

- **Each question will carry 10 marks**
- **Instruction: Write long answer**

| Q12 | **i)** Satoshi Corporation needs a program to calculate how much to pay their hourly employees. The Indian Department of Labor requires that employees get paid time and a half for any hours over 40 that they work in a single week. For example, if an employee works 45 hours, they get 5 hours of overtime, at 1.5 times their base pay. The Chandigarh UT requires that hourly employees be paid at least Rs 100.00 an hour. Satoshi Corp requires that an employee not work more than 60 hours in a week. An employee gets paid (hours worked) × (base pay), for each hour up to 40 hours. For every hour over 40, they get overtime = (base pay) × 1.5. The base pay must not be less than the minimum wage (Rs 100.00 an hour). If it is, print an error. If the number of hours is greater than 60, print an error message.

ii) Explain the concept of method overloading. Write a program to implement Constructor Overloading.

OR

i) Create Account class with account type, account number, minimum balance and current balance and provide corresponding getter and setter methods along with calInterest method. Create FixedDepositAccount, CurrAccount classes and inherit methods from Account class. Use Account class in Customer class to store account information in the customer object. | 10+10 | CO2 |

	ii) When do we use keywords final and static? Explain the working of static member functions.		