UPES

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2017

Program: B.Tech CSE+CL   Semester – V

Subject (Course): OOPS through Java   Max. Marks : 100
Course Code   : CSEG 319   Duration: 3 Hrs
No. of page/s: 5

Section-A
- **This section consists of multiple choice questions of 20 Marks**
- **All questions are compulsory and each question carries 2 marks**

Ques1: Write correct option/ options:

1. Which of the following statements is/are TRUE regarding JAVA?
   I.   Constants that cannot be changed are declared using the static keyword
   II. A class can only inherit one class but can implement multiple interfaces
      a. Only I is true
      b. Only II is true
      c. Both I and II are true
      d. None of the above

2. Dynamic binding uses which information for binding?
   a. type.

   b. object.

   c. Both of the above.

   d. None of the above.

3. Which of the following automatic type **conversion/s** will be possible?
   a. short to int
   b. byte to int
   c. int to long
   d. long to int

4. class Main {
   public static void main(String args[]) {

```
int a=10;
int b= 5++;
System.out.println(a);
System.out.println(b);
}
}
```
   a. 10 5
   b. 10 6
   c. Compile time error
   d. No output

5. You are writing a method that is declared not to return a value. Which **two** are permitted in the method body?
   a. Omission of the return statement
   b. return null;
   c. return void
   d. return;

6. What will the output of given code:
```
class Test {
public static void main(String args[]) {
int i = 1;
do {
i--;
} while (i > 2);
System.out.println(i);
}
}
```
   a. 0
   b. 1
   c. 2
   d. -1

7. Which **statement(s) are** true?
   a. "X extends Y" is correct if and only if X is a class and Y is an interface.
   b. "X extends Y" is correct if and only if X is an interface and Y is a class.
   c. "X extends Y" is correct if X and Y are either both classes or both interface.
   d. "X extends Y" is correct for all combinations of X and Y being classes and/or interfaces.

8. Select **one** correct answer from the statements given below:

a. An import statement, if defined, must always be the first non-comment statement of the file.
b. private members are accessible to all classes in the same package.
c. An abstract class can be declared as final.
d. Local variables cannot be declared as static.

9. Which of the following **statements** are true about interface?
   1. Methods declared in interfaces are implicitly private.
   2. Variables declared in interfaces are implicitly public, static, and final.
   3. An interface can extend any number of interfaces.
   4. The keyword implements indicate that an interface inherits from another.

   a. 1,2
   b. 2,3
   c. 2,3,4
   d. 1,2,3,4

10. Which of the following **statement(s)** are true for java? Tick correct answer/answers:
   a. JDK is required to compile java programs.
   b. JVM is responsible for converting Byte code to the machine specific code.
   c. We only need JRE to run java programs.
   d. JRE doesn't contains JVM.

Section-B
- **Each question carries 10 marks**
- **All questions are compulsory to attend**

Ques2. (a) Find the total objects created in the code given below [2.5] Also, find the output [2.5]
```
public class MyClass {
public static void main(String[] args) {
String a, b, c;
c = new String ("java");
a = new String ("subject");
b = a;
a = new String ("C++");
c = b;
System.out.println(c);
}
}
```

(b) How can you prevent a thread from execution in java?   [5]

Ques3. Why a method can never be marked as both abstract and final? [5] Write whether the given constructor for class Foo2 is legal or IIlegal. If illegal, provide the reason also.   [5]

class Foo2

{   Legal/Illegal?

Foo2() { }   ---------------

void Foo2() { }   ---------------

Foo2(int x) { }   ---------------

Foo() { }   ---------------

Foo2(short s);   ---------------

}

Ques4. (a)

```java
public class Animal {
    public void eat() {
        System.out.println("Generic Animal Eating Generically");
    }
}
public class Horse extends Animal {
    public void eat() {
        System.out.println("Horse eating hay ");
    }
    public void eat(String s) {
        System.out.println("Horse eating " + s);
    }
}
```

Find the output for each part based on the above code: [5]

a. Animal a = new Animal();
   a.eat();
b. Horse h = new Horse();
   h.eat();
C. Animal ah = new Horse();
   ah.eat();
D. Horse he = new Horse();
   he.eat("Apples");
E. Animal a2 = new Animal();

```
a2.eat("treats");
```

(b) Write a program to reverse string "Java Programming" without using Iteration and Recursion? [5]

Ques5. (a) There are three statements in a try block – statement1, statement2 and statement3. After that there is a catch block to catch the exceptions occurred in the try block. Assume that exception has occurred in statement2. Does statement3 get executed or not? [5]

(b) What is the role of wait, notify and notifyAll methods in java. [5]

Section-C
- **Each question carries 20 marks**
- **All questions are compulsory to attend**

Ques 6. Differentiate between (**Any four**): [20 Marks]
1. final and static modifier with respect to variables [5]
2. throw and throws [5]
3. ClassNotFoundException and NoClassDefFoundError? [5]
4. checked and unchecked exceptions? [5]
5. JDK and JVM [5]

Ques7. (a)Write a program in java that will accept 10 numbers and throws an exception if a number is odd. [5]

(b) Draw and discuss the life cycle of a thread. Take an example and write java code to discuss the importance of synchronization in threads. [15]

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Section-A
- **This section consists of multiple choice questions of 20 Marks**
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Ques1: Write correct option/ options:

1. Which of these is used to access member of class before object of that class is created?
   a) public
   b) private
   c) static
   d) protected

2. String in Java is a?
   a) class
   b) object
   c) variable
   d) character array

3. Which of the following statements are incorrect?
   a) String is a class.
   b) Strings in java are mutable.
   c) Every string is an object of class String.
   d) Java defines a peer class of String, called StringBuffer, which allows string to be altered.

4. Which of these keywords cannot be used for a class which has been declared final?
   a) abstract
   b) extends
   c) abstract and extends
   d) None of the mentioned

5. What is the output of this program?

```
class A {
    int i;
        A() {
            i = 1;
        }
    }
    class Output {
        public static void main(String args[])
        {
            A obj1 = new A();
            A obj2 = new A();
        System.out.print(obj1.equals(obj2));
        }
    }
```

   a) False
   b) true
   c) 1
   d) Compilation Error

6. What is the output of this program?

```
class San
{
  public static void main(String[] args)
  {
    try
    {
      return;
    }
    finally
    {
      System.out.println( "Finally" );
    }
  }
}
```

a) Finally

b) Compilation fails

c) The code runs with no output

d) An exception is thrown at runtime

7. What is multithreaded programming?

a) It's a process in which two different processes run simultaneously.

b) It's a process in which two or more parts of same process run simultaneously.

c) Its a process in which many different process are able to access same information.

d) Its a process in which a single process can access information from many sources.

8. Which of these packages contain all the Java's built in exceptions?

a) java.io

b) java.util

c) java.lang

d) java.net

9. Which of these is used as default for a member of a class if no access specifier is used for it?

a) private

b) public

c) public, within its own package

d) protected

10. What is the output of this program?

```
class A {
    public static void main(String args[]) {
        Thread t = Thread.currentThread();
        System.out.println(t);
    }
}
```

a)Thread[5,main]

b) Thread[main,5]

c)Thread[main,0]

d) Thread[main,5,main]

Section-B

- **Each question carries 10 marks**
- **All questions are compulsory to attend**

Ques2. (a) Find the total objects created in the code given below. Also, find the output [2.5+2.5]

    public class MyClass {

```java
public static void main(String[] args) {
String s1= new String("Java");
s1.concat("Subject");
String s2= s1.concat("Programming");
s1=s1.concat("end");
System.out.println(s1);
System.out.println(s2);
}
}
```

(b) Explain toString() method in java [5]

Ques3. Take an integer array as input from user which contains numbers from 1 to 10 but any one number is missing. Write a Java program using method to find that missing number in an array.

[10]
Input format- [4,1,2,5,6,8,7,10,9]

Ques4. Explain any **three** exceptions in java: [10]

(a) NullPointerException
(b) ClassNotFoundException
(c) NoClassDefFundError
(d) InterruptedException
(e) IllegalThreadStateException

Ques5. Write differences between method overloading and overriding [10]

Section-C
- **Each question carries 20 marks**
- **All questions are compulsory to attend**

Ques6. Differentiate between (**Any four):** [20 Marks]
1) throw vs throws [5]
2) final vs finally [5]
3) StringBuffer vs StringBuilder [5]
4) Method vs Constructor [5]
5) JDK vs JVM [5]

Ques7. Draw and discuss the life cycle of a thread. Take an example and write java code to discuss the importance of synchronization in threads. [20]