UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2017

Program: B.Tech EE   Semester   :VII

Subject (Course): Java Programming   Max. Marks   : 100
Course Code   : CSEG 313   Duration   : 3 Hrs
No. of page/s: 4

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

Ques1: Write correct option/ options:

1. Which of the following **statement(s) 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. class Test {
       public static void main(String args[]) {
        System.out.println(10 + 20 + "Quiz");
        System.out.println("JavaQuiz" + 10 + 20);
      }
    }
    a. 30Quiz
        JavaQuiz1020
    b. 1020Quiz
        JavaQuiz1020
    c. 30Quiz
        JavaQuiz30
    d. 1020Quiz
        JavaQuiz30

3. Which of these **operator** can be used to concatenate two or more String objects?
   a. +
   b. +=
   c. &
   d. ||

4. Which of the following **is** false about String?
   a. String is immutable.
   b. String can be created using new operator.
   c. String is a primary data type.
   d. None of the above.

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. 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.

7. Name the access modifier which when used with a method, makes it available to all the classes in the same package and to all the subclasses of the class.
   a. public
   b. private
   c. protected
   d. default

8. What will be the output of below program?
```
public class Test {
        public static void main(String[] args) {
                String s1 = "abc";
                String s2 = "abc";
                System.out.println("s1 == s2 is: " + s1 == s2);
                System.out.println("s1 == s2 is: " + (s1 == s2));
        }
```
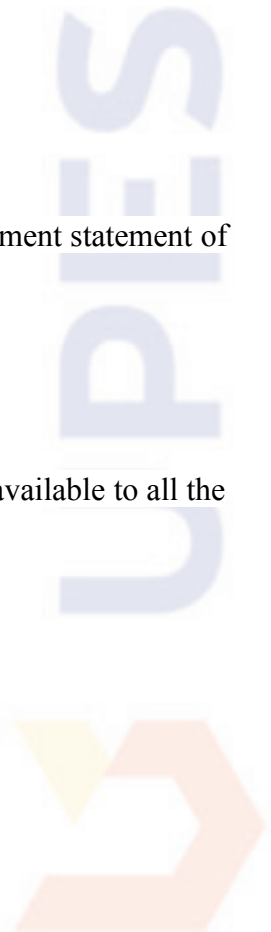
}
a. s1 == s2 is: false
   s1 == s2 is: true
b. false
   s1 == s2 is: true
c. s1 == s2 is: true
   s1 == s2 is: true
d. false

9. Which of the following **statement(s) is/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) is/are** true for java?
    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 total number of 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 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. Write a java program to get the difference between the largest and smallest values in an array of integers. [10]

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

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

Ques5. Write differences between: [5+5]

    (a) abstract class and interface
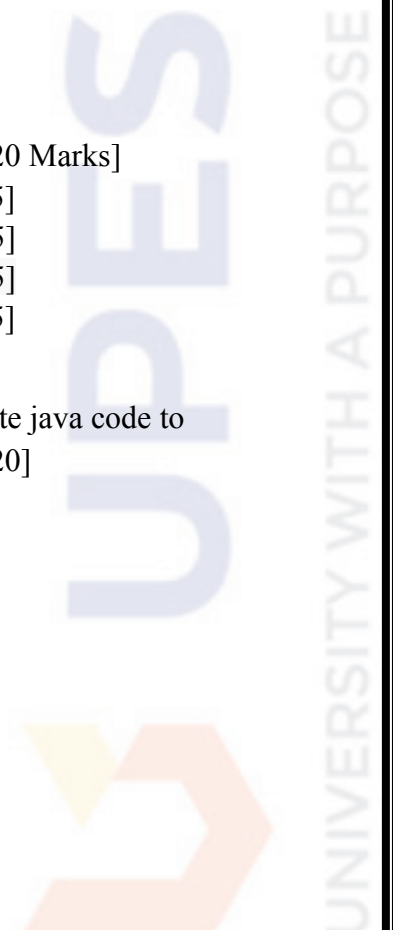   (b) compile time polymorphism and run time polymorphism

Section-C

- **Each question carries 20 marks**
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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

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]

Roll No: -------------------------

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Section-A
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Ques1: Write correct option/ options:

1. class Base {

```
        final public void show() {
          System.out.println("HI");
        }
      }

      class Derived extends Base {
        public void show() {
          System.out.println("Hello");
        }
      }

      class Main {
        public static void main(String[] args) {
          Base b = new Derived();;
          b.show();
        }
      }
```

   a) HI
   b) Hello
   c) Compiler error
   d) None of the above

2. Which of the following **is/are** true about inheritance in Java?
   a. In Java all classes inherit from the Object class directly or indirectly. The Object class is root of all classes.

b. Multiple inheritance is not allowed in Java.
c. Unlike C++, there is nothing like type of inheritance in Java where we can specify whether the inheritance is protected, public or private.

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. Which declaration initializes a Boolean variable?
   a) boolean i=1;
   b) boolean i=0;
   c) boolean i=null;
   d) boolean i=(i>5);

5. The method is declared to take three arguments. A program calls this method and passes only two arguments. What is the result?
   a) Compilation fails
   b) The third argument is given the value void
   c) The third argument is given the value zero
   d) An exception occurs when the method attempts to access the third argument.

6. 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.

7. 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.
8. abstract class X{
       private int x;
      public X(int x) {
        this.x=x;   }
      public void x() {}
       private void xy() {}   }
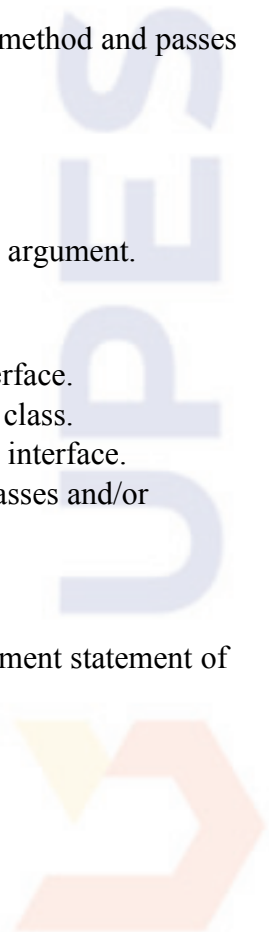
what is true about the class X?
a) It compiles without error
b) It does not compile because an abstract class cannot have private methods
c) It does not compile because an abstract class cannot have instance variable
d) It does not compile because an abstract class must have atleast one abstract method.
e) None of the above

9. 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.

10. What is the use of final keyword in Java?
    a) When a class is made final, a subclass of it cannot be created.
    b) When a method is final, it cannot be overridden.
    c) When a variable is final, it can be assigned value only once.
    d) All of the above

**Section-B**
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Ques2 Define and state the differences between method overloading and overriding?   [10]

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);   ----------------

}
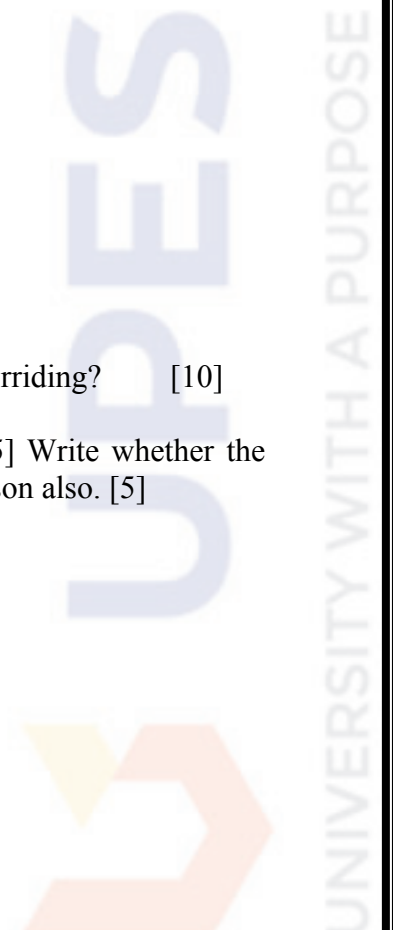
Ques4. When we can't create object of abstract class then why java allow defining a constructor in its body? Explain with example. [10]

Ques5. (a) Explain default exception handling in java [5]

(b) Consider the given program below and predict weather the code will compile or not. Give proper reason to justify your answer. [5]

```
class A
{
    public static void main(String[] args)
    {
        throw new ArithmeticException();
    }
}
```

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

Ques6. Explain different ways to create String object in java? [5] How do you check if two Strings are equal in Java? [5] Write a method to check if input String is Palindrome?[5] and write differences between StringBuffer and StringBuilder[5]?

Ques7. Explain any **four**: [5*4]
(a)What is a thread in java?
(b) How can you say Thread behavior is unpredictable?
(c) What is race condition in multithreading and how can we solve it?
(d) How threads communicate between each other?
(e) Why wait(), notify() and notifyAll() are in Object class and not in Thread class?