Sir Syed University of Engineering & Technology

ANSWER SCRIPT

Date:	15th June , 2021
Roll Number:	SE-20F-022
Section:	A
Name:	Abdul Moiz Chishti
Course Name:	Object oriented programming
Degree Program:	Software Engineering
Total number of pages being submitted:	

Ques 1:

a) To create a String object, you must use the keyword new and explicitly call the class

constructor

b) When you compare Strings with the == operator, you are comparing their memory

addresses, not their values.

c) When you compare Strings with the equals () method, you are comparing their values,

not their memory addresses

JUSTIFICATIONS:

The equals() method compares two strings, and returns true if the strings are equal, and false if not. In simple words, == checks if both objects point to the same memory location whereas. equals() evaluates to the comparison of values in the objects

Coding example:

```
public class Test {


  public static void main(String args[]) {

    Integer x = 5;

    Integer y = 10;

    Integer z =5;

    Short a = 5;


    System.out.println(x.equals(y));
```

```
    System.out.println(x.equals(z));
    System.out.println(x.equals(a));
  }
}
```

a. You use the keyword inherits to achieve inheritance in Java.

b. A derived class can access directly all its parents' nonprivate methods.

c. Subclasses are more specific than the superclass they extend

JUSTIFICATIONS:

A subclass is more specific than its superclass because it represents a smaller group of objects as subclass is a class that derives from another class and inherits state and behavior from all of its ancestors.

Coding example:

```
class Animal {

  String name;
  public void play() {
    System.out.println("I like to play");
  }
}

class Dog extends Animal {

  public void display() {
    System.out.println("My name is " + name);
  }
}
```

```
class Main {
  public static void main(String[] args) {
    Dog labrador = new Dog();
    labrador.name = "Scar";
    labrador.display();

    labrador.play();

  }
```

Ques 2:

```
package paper2;
public class Paper2 {
    public static void main(String[] args) {
        EducationInsurance a=new EducationInsurance("Abdul Moiz Chishti",001,50000,"15 years");
        a.annuallyPaymentPlan();

}}
package paper2;
public interface FixedInsurance {
    final String beginner="5 years";
    final String intermediate="10 years";
    final String advance="20 years";
}
package paper2;
public abstract class Insurance implements FixedInsurance {
    String customer_name,timeperiod;
    int  policynumber, insurance_amount, interestrate;
    public Insurance(String customer_name,int policynumber,int insurance_amount,String timeperiod){
        if(insurance_amount>5000000)
```

```
            System.out.println("Amount Invalid");
        else
        {
            this.customer_name=customer_name;
            this.insurance_amount=insurance_amount;
            this.policynumber=policynumber;
            this.timeperiod=timeperiod;
        }

    }
    public void toSting(){
        System.out.println("Customer Name : "+ customer_name);
        System.out.println("Insurance Amount : "+insurance_amount);
        System.out.println("Policy Number : "+ policynumber);
        System.out.println("Time Period : "+timeperiod);
        System.out.println("Interest Rate : "+interestrate+" per year");
    }
    abstract void annuallyPaymentPlan();

}
class EducationInsurance extends Insurance{

    public EducationInsurance(String customer_name, int policynumber, int insurance_amount, String
timeperiod) {
        super(customer_name, policynumber, insurance_amount, timeperiod);
        interestrate=(int)(insurance_amount*0.015);
    }

    @Override
    void annuallyPaymentPlan() {
```

```
        String type="Insurance Type : Intermediate";

        toString();


    }

}
```

Ques 3:

If the exception occurs statement 4 will be executed as The **finally block** executes whether exception rise or not and whether exception handled or not. Same as statement 5 will be executed as it is out of try and catch block..

(c) If the line 8 is replaced by catch(Exception e) it will give an error as there is already a catch block so there is no use of it.

Programming Part:

```
package javaapplication38;

class calculator {
    int a,b;
    calculator(){
    };
    calculator(int a,int b){
        this.a=a;
        this.b=b;
    }
    public void division() throws ArithmeticException{
    if(b<0) {
     System.out.println("answer is infinity");
     throw new ArithmeticException();
    }//if
    else {
     System.out.println("Division is : "+(a/b));
    }
   }

}
public class JavaApplication38 {
    public static void main(String[] args) {

        calculator ob=new calculator(36,2);
        ob.division();
        calculator ob1=new calculator(10,-3);
        ob1.division();
    }

}
```

Ques 4:

```
package book;


/**
 *
 * @author Abdul Moiz Chishti
 */
import java.util.Scanner;
public class Book {


    String bn;
    String py;


        String b_name;
        String b_writers;
        String b_printer;
        String b_barcode;
        String b_cost;
        String b_publicationyear;
        String b_copiesavailable;


 Book(String name,String writers,String printer,String barcode,String cost,String py,String ca){
            b_name=name;
            b_writers=writers;
            b_printer=printer;
            b_barcode=barcode;
            b_cost=cost;
            b_publicationyear=py;
            b_copiesavailable=ca;
    }
```

```
    void Display(){
        System.out.println(b_name);
        System.out.println(b_writers);
        System.out.println(b_printer);
        System.out.println(b_barcode);
        System.out.println(b_cost);
        System.out.println(b_publicationyear);
        System.out.println(b_copiesavailable);
    }
String barcode;String cost;String writers;
 public void getbyprinters(String barcode,String cost,String writers){
 this.barcode=barcode;
 this.cost=cost;
 this.writers=writers;

 }
 public void setbyprinters(){
    System.out.println("Barcode :"+barcode);
    System.out.println("Cost :"+cost);
    System.out.println("Writers :"+writers);
 }
public static void main(String[] args) {
       Scanner sc=new Scanner(System.in);
   Book myobj=new Book("The Kite Runner","anonymous","anonymous","2345","1250/-","2002","19998");
   myobj.Display();
myobj.getbyprinters("8992943", "899", "J.K Wroling");
    myobj.setbyprinters();
```