United International University (UIU)

Dept. of Computer Science & Engineering (CSE)

Assignment, Trimester: Summer 2024
Course Code: CSE-1115, Course Title: Object Oriented Programming
Total Marks: 20

QUESTION 1 [4 MARKS]

Consider the following codes:

```
public class Person {
  public String name, gender;
  private int age; // private = restricted access

  // Write constructor to initialize name and gender with this reference keyword;

  // Write getter method for age;

  // Write setter method for age;

  public static void main(String[] args) {
    Person p1 = new Person("Prof. Albert Einstein", "Male");
    System.out.println(p1.name);
  }
}
```

Now:

I. Write constructor to initialize name and gender with this reference keyword.

II. Write getter method for age variable.

III. Write setter method for age variable.

QUESTION 2 [4 MARKS]

Consider the following codes:

```
class Vehicle {
  protected String brand;

  public Vehicle(String brand) {
     this.brand = brand;
  }

  public void honk() {
    System.out.println("Tuut, tuut!");
  }
}

public class Car extends Vehicle {
  private String modelName;
```

Output:

```
A vehicle horn is a sound-making device.
Tuut, tuut!
Ford Mustang
```

```
  // Invoke parent class constructor;

  // Invoking overriding method;

  public static void main(String[] args) {
    Car myCar = new Car("Ford", "Mustang");
    myCar.honk();
    System.out.println(myCar.brand + " " +
myCar.modelName);
  }
}
```

Now:

I. Write the constructor of car class and invoke the parent class constructor.

II. Override the honk() method and print "A vehicle horn is a sound-making device." then invoke the overridden method.

QUESTION 3 [4 MARKS]

Manually trace the following code and explain its output:

```
class Calculate{
  static int count=10;

  static{  System.out.println("United International University");  }

  static int cube(int x){
    return x*x*x;
  }

  public static void Counter(){
    count++;//incrementing the value of static variable
    System.out.println(count);
  }

  public static void main(String args[]){
    Calculate.Counter();
    Calculate c1 = new Calculate();
    c1.Counter();
    Calculate c2 = new Calculate();
    c2.Counter();
    System.out.println(c1.count);
    int result=Calculate.cube(Calculate.count);
    System.out.println(result);
  }
}
```

QUESTION 4 [4 MARKS]

Manually trace the following code and explain its output:

```
public class Sum {
   int x, y, z;
   {
      System.out.println(x+y+z);
   }

   {
      x = 10;
      y = 20;
      z = 30;
      System.out.println(x+y+z);
   }

   public Sum(int x) {
      this.x = x;
      System.out.println(x+y+z);
   }

   public Sum(int x, int y) {
      this(1000);
      this.x = x;
      this.y = y;
      System.out.println(x+y+z);
   }

   public Sum(int x, int y, int z) {
      this(100, 200);
      this.x = x;
      this.y = y;
      this.z = z;
      System.out.println(x+y+z);
   }

   public void display(){
      this.display("That's one small step for man, one giant leap for mankind.");
   }

   public void display(String str){
      System.out.println(str);
   }
   public static void main(String args[])
   {
      Sum s = new Sum(10, 20, 30);
      s.display();
   }
}
```