1) What will be the output for the following program?

```
public class Test{
   public static void main(String[] args) {
         int x = 1, y = 2;
         do
             System.out.print("JAVA");
         while (x < y)
             System.out.print("CSC111");
 } }
```

a) JAVA **b)** CSC111 **c)** JAVACSC111 **d)** Compilation error **e)** JAVA (infinitely)

2) What will be the output for the following program segment?

```
int sum;
for(sum=0; sum>=0; sum++)
   sum--;
   System.out.println("sum: " + sum);
```

a) 0 **b)** -1 **c)** Infinite loop **d)** Compilation error **e)** None of the above

3) What will be the output for the following program segment?

```
int x = 135;
int z = 0;
for(int i=x; i>0; i=i/10)
       z++;
System.out.println(z);
```

a) 1 **b)** 2 **c)** 3 **d)** 4 **e)** None of the above

4) What will be the output for the following program?

```
public class Test {
   public static void main(String[] args) {
         do {
             System.out.print(2);
             do {
                 System.out.print(1);
             } while (false);
         } while (false);
} }
```

a) 1 **b)** 2 **c)** 12 **d)** 21 **e)** No output

5) How many stars will the following program segment print?

```
int value = 5;
int value2 = 1;
while (value2 < 4){
   for (;value >= value2; value--){
         System.out.println("*");
   }
   value2++;
}
```

a) 5 **b)** 10 **c)** 15 **d)** Infinite loop **e)** Compilation error

6) What would be the output of the method call: **`method6(24.0);`**

```
public void method6(int number) {
   int x = number;
   int count = 0;
   do{
         x = x / 10;
         count++;
   } while (x > 0);
   for(int i=0; i<count/2; i++) {
         number = number / 10;
   }
   System.out.println(number);
}
```

a) 0 **b)** 1 **c)** 2 **d)** 2.0 **e)** Compilation error

7) Consider **`Question7`** class given below, along with the **`Test`** class.

```
public class Question7
{
  private int x = 8;
  public void update(int y)
  {
     x = x / y;
  }
}//end class Question7
```

```
public class Test
{
  public static void main(String[] args) {
    Question7 q = new Question7();
    q.update(2);
    System.out.println(q.x);
  }
}//end class Test
```

When running the method main in the **`Test`** class, the output will be:

a) 4 **b)** 8 **c)** 2 **d)** Compilation error **e)** None of the above

8) Consider the **`Confuse`** class given below, along with the **`Test`** class.

```
public class Confuse
{
  public int x;
  void first(int y)
  {
     x = x + y;
  }//end method first
  void second(int a, int b)
  {
     x = a - 1;
     first(b);
  }//end method second
  public void doIt()
  {
    x = 3;
    int y = 6;
    first(y);
    second(y,x);
    System.out.println(this.x);
  }//end method doIt()

}//end class Confuse
```

```
public class Test
{
  public static void main(String[] args) {
    Confuse q8 = new Confuse();
    q8.doIt();
  }
}//end class Test
```

When running the method **`main`** in the **`Test`** class, the output will be:

a) 3 **b)** 6 **c)** 9 **d)** 11 **e)** 14

9) Consider the **`X`** class given below, along with the **`Test`** class.

```
public class X{
 public int first(int x, int y)
 {
   int z=0;
   for (int i=0; i<y; i++) {
         z = z + x;
   }
   return z;
 } // end method first
 public int second(int x, int y)
 {
   int z=1;
   for (int i=0; i<y; i++) {
         z = first(x, y);
   }
   return z;
 } // end method second
} // end class X
```

```
public class Test
{
  public static void main(String[] args) {
    X q9 = new X();
    System.out.print(q9.second(2,3));
  }
}//end class Test
```

When running the method **`main`** in the **`Test`** class, the output will be:

a) 4 **b)** 5 **c)** 6 **d)** 9 **e)** None of the above

10) Consider the **`Check`** class given below, along with the **`Test`** class.

```
public class Check
{
  int x = 0;
  public void checkIt()
  {
    int y = 3;
    if( one() )
      if( two(y) )
          x++;
    System.out.println(x);
  }
  public boolean one()
  {
     x++;
     return true;
  }
  public boolean two(int x)
  {
    x++;
    return true;
  }
}//end class Check
```

```
public class Test
{
  public static void main(String[] args) {
    Check q10 = new Check();
    q10.checkIt();
  }
}//end class Test
```

When running the method **`main`** in the **`Test`** class, the output will be:

a) 3 **b)** 2 **c)** 1 **d)** 0 **e)** Compilation error

Question 2: (5 marks)

2.1) What output is produced by the following program segment? **(1 mark)**

```
String name = "Omar B. Saad";
int i = 0;
boolean startword = true;
for ( ; i < name.length(); i++) {
     if(startword)
         System.out.println(name.charAt(i));
     if(name.charAt(i) == ' ')
         startword = true;
     else
         startword = false;
}
```

Answer:

O
B
S

2.2) Convert the following `for` loop to a `while` loop. **(1 mark)**

```
int sum = 0;
for (int i = 0; i < 100; i += 3)
         sum += i;
```

Answer:

```
int sum = 0;
int i = 0;
while(i < 100){
  sum += i;
  i += 3;
}
```

2.3) Fill-in the blanks below with suitable Java code as instructed? **(3 marks)**

```
public class Point {

 // a point representing a location in (x,y) coordinate space
 private double x;
 private double y;

// sets the location of this point to the specified double coordinates.
 public void setXY(double x, double y)
 {
        this.x = x ;

        this.y = y ;

 }

 // calculates and returns the slope of a line from two points
 // Example: given (x1,y1) and (x2,y2)
 // slope = (y2-y1)/(x2-x1)
 public double slope(double dx, double dy) {

        double m = (dy - y) / (dx - x);

        return m;
 }

 // shifts the point's x and y coordinates by the given amounts.
// Example: when translate method is called with dx=1 and dy=2, this point
// , for example (2,3), will be shifted to a new location that is (3,5)
 public void translate(double dx, double dy) {

        x += dx ;

        y += dy ;
 }
}
```