Part I Answer the following multiple-choice questions.

B

1) Statement 5/0; comes under which of the following programming error category?

A) Logic error
B) Compile time error
C) Link time error
D) Run time error

2) Consider the following program:

```
import myLibrary.*;
public class ShowSomeClass
{
// code for the class...
}
```

What is the name of the java file containing this program?

A) myLibrary.java
B) ShowSomeClass.java
C) ShowSomeClass
D) ShowSomeClass.class

3) Which of the following is a valid assignment statement (assume the variables are properly declared)?

A) 9 = x;
B) m + m = x;
C) x = 2;
D) 9 + 8 = x;

4) Which of the following results is correct when evaluating 25%3?

A) 8.33 B) 1 C) 2 D) 3 A) 4

5) What is k after the following statements?

```
int k = 10;
int h = 5;
k/= h + 3;
```

A) k is 1
B) k is 1.25
C) k is 5
D) k is none of the above.

6) Which of the following variable declaration would NOT compile in a Java program?

A. int var;
B. int var1;
C. int var_1;
D. int 1_var;

7) To convert a string **s** into a double value, you can use

A) Double.parsedouble(s);
B) double.parseDouble(s);
C) Integer.parseInt(s);
D) Double.parseDouble(s);

8) The statement, `result=result/(a%b/(a+b));` is equivalent to:

A) `result=/a%b/(a+b);`
B) `result/=a%b/(a+b);`
C) `result%=a%b/(a+b);`
D) `result=a%b/(a+b);`

9) What is the output of the following code?

```
int x = 10/5.0;
System.out.println(x);
```

A) 2.5
B) 2
C) A runtime error occurs and x can't be evaluated.
D) None of the above.

10) What will be the output when you compile and run the following code?

```
class Datatype {
public static void main(String[] args) {
byte num=130;
System.out.print(num);
}
}
```

A) 130
B) 3
C) -126
D) Compiler error

Part II (Answer the following questions

1) What is the output of the following program?

```
public class Test {
   public static void main(String[] args) {
     int x = 3;
     int y = x * x--;
     System.out.println("y is " + y + " and x is "+ x);
```

```
    }
}
```

Output:

```
y is 9 and x is 2
```

2) What is the output of the following code fragment?

```
double B = 5.9;
System.out.print("B is "+ (int)B);
```

Output:

```
B is 5
```

3) What is the output of the following statements?

```
System.out.println((double)(3*5/2));
System.out.println(3*(double)(5/2));
System.out.println(3*5/(double)(2));
```

Output:

```
7.0
6.0
7.5
```

4) Determine the output of the following code.

```
int x=3;
int y=4;
String s="S";
System.out.print("output is "+s+x+y);
System.out.print(" output is "+s+(y+y));
```

Output:

```
output is S34 output is S8
```

5) What is the result of the following Java arithmetic expression? (Show your work).

```
6*(-2)/3-2/2+2 =
```

-3

6) The following program has some errors. Rewrite the program with no errors such that the output must be 8.0 without changing any literal.

```
Public Class ShowErrors
{
      Public static void Main(String[] args) {
      int y = 1.5, int x = y + 2;
      System.out.print(y+ x + 3.5);
}
```

```
public class ShowErrors
{
  public static void Main(String[] args){
     double y = 1.5,  x = y + 2;
     System.out.print(y+ x + 3.5);
   }
  }
```

Part III

A. Write an **algorithm** and draw a **flowchart** for the following problem.

Given the original price of an item and a discount on the item (in percent), calculate and output the final price of the item and the amount saved after the discount.

```
input  originalPrice , discount
amountSaved = originalPrice * discount / 100
finalPrice =originalPrice - amountSaved
output  finalPrice , amountSaved
```

B. Write a **complete java program** for the problem of part A. Be sure to include plenty of **documentation**!
BELOW IS A SAMPLE OUTPUT (Your output may vary from this based on the input values):