Fall 2017 - CS2540 - Programming Workshop

Quiz 1

CIN: Marks: 50
Name: Date:

1) Assume a car runs for about 18 kms in 25 minutes and 15 seconds. Write a program that displays the average speed in miles per hour. (Note: 1 miles = 1.6 kms) (5 marks)

2) Write java program for the following, (5 + 5 mark)
   a) Swap 2 numbers with temp variable.
   b) Swap 2 numbers without temp variable.
      (Note: You should get the inputs from the user)

3) Write the output of the following code snippet. (5 marks)

```java
int a = 10, b = 10, c = 0;

c = a++ + ++b - --b + ++a + --b + ++b - a++ + b++;
System.out.println(a);
System.out.println(b);
System.out.println(c);
```

4) Write the output of the following code snippet. (5 marks)

```java
int a = 5, b = 10, c = 0;

c += a;
b -= c;
a %= c;
c *= b;
c /= b;

System.out.println(a);
System.out.println(b);
System.out.println(c);
```

5) How do you write the following arithmetic expression in java? (5 marks)
   a) \( X = \frac{-b+\sqrt{b^2-4ac}}{2a} \)
   b) \( X = \frac{4}{3(r+34)} - 9(a + bc) + \frac{3+d(2+a)}{a+bd} \)
6) Write a program that prompts the user to enter the distance to drive, the fuel efficiency of the car in miles per gallon and the price per gallon and display the cost of the trip. (5 marks)

7) Given an airplane’s acceleration and take off speed, you can compute the minimum runway length needed for an airplane to takeoff. Consider that the length of the runway is the square of the speed divided by twice the acceleration of the airplane. (Note: The program should prompt the user to enter all the required inputs in the same line.) (5 marks)

8) Write a program that calculates and displays the following. Note: You should get the required input from the user. (10 marks)

Circle: Area $A = \pi r^2$  Perimeter $P = 2\pi r$

Rectangle: Area $A = lb$  Perimeter $P = 2lb$

Cylinder: Area $A = 2\pi r(r + h)$  Volume $V = \pi r^2 h$

Hexagon: Area $A = \frac{3\sqrt{3}}{2} a^2$

Triangle: Area $A = \sqrt{s(s - side1)(s - side2)(s - side3)}$