CSE 215: Programming Language II
Sec – 5, Faculty: SvA
Homework # 1, Marks: (25 x 4 = 100)

Deadline: 20.01.2016

Instruction:

1. Use A4 sized papers
2. Answer everything using a pen. Pencil is not allowed.
3. Write your answers on both sides of the papers. If you leave any side then you will be penalized.
4. Use a separate paper on top of your answer script that must include course name, section number, current semester, your name, your ID, Homework number.

Answer the following questions briefly and to-the-point.

1. What is a bit? What is a byte?
2. What is the difference between an interpreted language and a compiled language?
3. What are multiprogramming, multithreading, and multiprocessing?
4. Is Java case sensitive? What is the case for Java keywords?
5. Can Java run on any machine? What is needed to run Java on a computer?
6. What are the input and output of a Java compiler?
7. What are syntax errors (compile errors), runtime errors, and logic errors?
8. If you forget to put a closing quotation mark on a string, what kind error will be raised?
9. If your program needs to read integers, but the user entered strings, an error would occur when running this program. What kind of error is this?
10. Suppose you write a program for computing the perimeter of a rectangle and you mistakenly write your program so that it computes the area of a rectangle. What kind of error is this?
11. Identify and fix the errors in the following code:

```
1 public class Welcome {
2     public void Main(String[] args) {
3         System.out.println('Welcome to Java!);
4     }
5 }
```

12. Are there any performance differences between the following two **import** statements?

```
import java.util.Scanner;
import java.util.*;
```

13. Which of the following identifiers are valid? Which are Java keywords?

miles, Test, a++, --a, 4#R, $4, #44, apps, class, public, int, x, y, radius

14. Identify and fix the errors in the following code:

```
1 public class Test {
2     public static void main(String[] args) {
3         int i = k + 2;
4         System.out.println(i);
5     }
6 }
```

15. Identify and fix the errors in the following code:

```
1 public class Test {
2     public static void main(String[] args) {
3         int i = j = k = 2;
4         System.out.println(i + " " + j + " " + k);
5     }
6 }
```

16. What are the naming conventions for class names, method names, constants, and variables? Which of the following items can be a constant, a method, a variable, or a class according to the Java naming conventions?

MAX_VALUE, Test, read, readDouble

17. Show the result of the following remainders.

```
 56 % 6
 78 % -4
-34 % 5
-34 % -5
  5 % 1
  1 % 5
```

18. What is the result of `25 / 4`? How would you rewrite the expression if you wished the result to be a floating-point number?

19. Show the result of the following code:

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

20. Are the following statements correct? If so, show the output.

```
System.out.println("25 / 4 is " + 25 / 4);
System.out.println("25 / 4.0 is " + 25 / 4.0);
System.out.println("3 * 2 / 4 is " + 3 * 2 / 4);
System.out.println("3.0 * 2 / 4 is " + 3.0 * 2 / 4);
```

21. Which of the following are correct literals?

`5_2534e+1, _2534, 5_2, 5_`

22. How would you write the following arithmetic expression in Java?

$$\frac{4}{3(r+34} - 9(a+bc) + \frac{3+d(2+a)}{a+bd}$$

23. Show the output of the following code:

```
double a = 6.5;
a += a + 1;
System.out.println(a);
a = 6;
a /= 2;
System.out.println(a);
```

24. Which of these statements are true?
    a. Any expression can be used as a statement.
    b. The expression `x++` can be used as a statement.
    c. The statement `x = x + 5` is also an expression.
    d. The statement `x = y = x = 0` is illegal.

25. Show the output of the following code:

```
int a = 6;
int b = a++;
System.out.println(a);
System.out.println(b);
a = 6;
b = ++a;
System.out.println(a);
System.out.println(b);
```