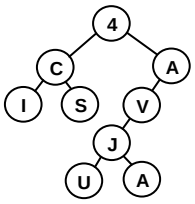

ICS4U

Classes
(Notes Review)

Answer the following questions on a separate sheet of paper, hand written only. Complete sentences not required. (1pt each unless otherwise stated)

1. What are the major programming levels?
2. Machine language consists of _____ .
3. What is assembler language and how is it better than machine language?
4. What did John von Neumann do?
5. How are high level languages better than assembler?
6. What good is assembly language?
7. What is the relationship between number of lines of code in machine language, assembler and high level languages?
8. What was one of the first high level programming languages and who invented it?
9. Describe how interpreters and compilers are the same?
10. Describe how interpreting and compiling are different?
11. Describe the steps involved in creating and running Java program.
12. How does a fourth generation language differ from a normal high level language
13. What are the three major programming styles?
14. What are the characteristics of a spaghetti program?
15. What did Bohm & Jacopini do?
16. Who first used the term “structured programming” and when?
17. What are the rules of structured programming?
18. Does OOP replace or augment (add to) structured programming? If it augments structured programming, what does it add?
19. How do methods of a class differ from ordinary methods of a structured program?
20. Relate the words “analysis” and “synthesis” with “structured programming” and “OOP”.
21. A class is a collection of _____ and _____ .
22. An instance of a class is an _____ .
23. Objects are to_____ as _____ are to types.
24. What does a constructor do?
25. What happens if no constructor is written?
26. What two things does a “new” statement do?
27. From within a class, what’s the difference between private, protected and public?
28. From outside a class, what does public mean?
29. From outside a class, what impact does protected have? (Explain fully)
30. What operator is used to access an object’s methods?

31. Study the following code: (7 points)

```
public class Test
{
    public static void main(String [] args)
    {
        Silly a, b, c;
        a = new Silly();
        b = new Silly();
        c = b;
        a.methodA();
        Silly.methodB();
        Silly.methodC();
        ...
    }
}

class Silly
{
    protected int i, j, k;
    public static int m, n;

    public Silly()                { ... }

    public void methodA()         { methodC(); ... }

    protected void methodB()      { ... }

    public static void methodC()  { methodB(); ... }
}
```

    a. Draw a picture of a.
    b. How many integer variables, in total, are created? (Assume the program would run.) List them.
    c. List all the class fields in Silly.
    d. List all the class methods in Silly.
    e. List all the instance fields in Silly.
    f. List all the instance methods in Silly.
    g. The program, as is, would NOT compile or run. Indicate all the errors.

32. Write the code necessary to: (4 points)
    a. Convert a string s into a float x.
    b. Convert a string s into a double d.
    c. Convert a string s into an integer i.
    d. Convert a double d into a string s.

41 Total Points