(The contents of the questions are not relavant to the I2ML course!)

Question X   Completion by Matching   (10×1.5 points = 15 points)

Fill in the sentences using the appropriate terms from the following list: **break, classes, continue, default, double, enum, extends, final, implements, instance, interface, long, new, null, operations, overloading, override, polymorphism, private, protected, public, static, super, this, void.**

Java programs are organized in___**(11)**___. A java source file can only contain no more than one **(12)** class.

The___**(13)**___ keyword is used when defining a method to specify that the method does not return any type.

The ___**(14)**___ statement, when execute in a repetition statement, skips the remaining statement in the loop body and proceeds with the next iteration of the loop.

When a method in a subclass has the same name, parameters, or signature, as well as the same return type as a method in its super-class, then the method in the subclass is said to **(15)** the method in its super-class.

Any member (variable or method) in a class **without static** modifier indicates that it is a/an___ **(16)** member; otherwise (with static) means it is a class member. The structured (process) programming style in java is mainly implemented by ___**(17)**___ methods.

The nature of class inheritance is specialization (reversion of generalization), the reserved words **extends** and ___**(18)**___ are used to implement inheritance in java.

A data type refers to a set of values and a set of ___**(19)**___ applied on those values..

Late/Dynamic Binding and Method Looking Up are essential mechanisms for ___**(20)**___.

Ref. Ans. for Question X   Completion by Matching   (10x1.5 points = 15 points)

(11) classes   **(12) public**   **(13) void**

(14) continue   **(15) override**   **(16) instance**

(17) static|class **(18) implements**   **(19) polymorphism**

(20) polymorphism

Question Y   Matching (14×1 point = 14 points)

Fill in each blank represented with a number with parentheses in the sentences using the best LETTER(s) representing the corresponding term(s) from the following alternatives listed below. Or answer a **T** or **F** according to the correctness of each complete statement. Each of which could be re-used and could be the answer for more than one of **(1)~(14)**:

Alternative Answers:

A. access B. algorithm   C. cutoff D. degree   F. false   G. in-degree   H. heap

I. input   J. insert   L. linked lists   M. modifications   N. map

O. output   P. out-degree Q. queue   R. in-place   S. stack   T. true

U. f(n) = Θ(g(n))   V. f(n) = O(g(n))   W. f(n) = Ω(g(n))

An algorithm is a sequence of unambiguous instructions for solving a computation problem, i.e., for obtaining a required __(1)__ for any legitimate __(2)__ in a finite amount of time.

A data structure is a way to store and organize data in order to facilitate __(3)__ and modifications.

A LIFO data structure is called as a __(4)__ and a FIFO data structure is called as a __(5)__.

To prevent too many recursive call for tiny sized array slice in mergesort or quicksort, in practice to enhance efficiency normally use __(6)__ to insertion sort when the length of slice is small enough.

In a directed graph, __(7)__ of a vertex is the number of edges directed to the vertex   and __(8)__ of a vertex is the number of edges started from the vertex.

In history, a symbol table had been also called dictionary,   __(9)__ or associated arrays.

(10)   The number of edges E in a mimal spanning tree for a connected graph with the number of vertex V always have the relation E = V-1.

(11)   For a pragmatic problem, a simple data structure always work with an efficient algorithm.

In algorithm analysis, if there is a positive constant c such that when N is large enough, there always have f(N) >= c g(N), then we denoted them as __(12)__; if there is a positive constant c such that when N is large enough, there always have f(N) <= c g(N), then we denoted them as __(13)__; if there are 2 positive constants c_1 and c_2 such that when N is large enough,   there always have c_1 g(N) <= f(N) <= c_2 g(N), then we denoted them as __(14)__.

Question Y   Matching   (14×1 point = 14 points)

(1) O   (2) I   (3) A   (4) S   (5) Q

(6) C   (7) G   (8) P   (9) N   (10) T

(11) F   (12) W   (13) V   (14) U