

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

Question X Completion by Matching (10x1.5 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 executed 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 (14/14 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. $f(n) = (g(n))$ V. $f(n) = (g(n))$ W. $f(n) = (g(n))$

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 $f(N) \geq c g(N)$, then we denoted them as (12); if there is a positive constant c such that when N is large enough, there always have $f(N) \leq c g(N)$, 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 $c_1 g(N) \leq f(N) \leq c_2 g(N)$, then we denoted them as (14).

Question Y Matching (14/14 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