

NOUN EXAMS

Which of the following options best describe an interface in java?
Interface defines the set of methods of a well defined class

Given two positive polynomial functions $f(n)$ and $g(n)$ of different order where $g(n) > f(n)$ then which of the following is true?
 $f(n) + g(n) = \Theta(\min(f(n), g(n)))$

Which of the following algorithms works by making a local optimal decision and never reconsiders the decision, regardless of whatever situation may arise later
Greedy algorithm

A base class can force a derived class to override an inherited method by overriding

Which of the following options best describe generic methods?
(methods that introduce their own type parameters)

Which of the following options is a valid declaration of an object of class Student?
(Person student = new Student());

An array contains five the numbers 12, 5, 7, -1, 2 to be sorted. If after the first iteration, the array is now 5, 7, -1, 2, 12. Which algorithm is being used?
(Selection sort)

Which of the following best describe the functionality of a break statement?
(Break halts the execution and forces the control out of the loop)
...break statement is used to unconditionally jump out of the loop.

Given two positive polynomial functions $f(n)$ and $g(n)$ of different order where $g(n) > f(n)$ then which of the following is true?
($g(n) = \Theta(f(n) + g(n))$)

An array $A[0..n-1]$ is sorted using the Insertion sort algorithm. The worst case and the best case running time of this computation respectively are
($O(n^2)$ and $O(n)$)

Which of the following loops will execute statements at least once, even when the condition is initially false.
(do-while)

Which of the following sorting algorithm is not in place?
(Merge sort)

The process of evaluating the complexity of an algorithm by determining an expression of the number of steps needed as a function of the problem input size is called
(time complexity)

Given a directed graph G with the set of edges $E = \{ (1, 2), (2, 4), (4, 2), (4, 1) \}$ what will be the set of edge of it transpose?
($E = \{ (2, 1), (4, 2), ($

Which of the following best defines a class?
(blueprint from which individual objects are created)

Given a perfect binary tree containing n nodes, what is the worst case complexity for an unsuccessful search?
($O(n)$)

Which OOP features promotes code re-use?
(Inheritance)

When is an object in java regarded as a garbage?
(If its reference count is 0)

What is the logical representation of the expression "A is from 70 to 100 inclusive"
($A \geq 70 \ \&\& \ A \leq 100$)

what is the number of nodes of a perfect binary tree of height 3,
(15)

What is the value of $s1$ and $s2$ after the execution of the following java code fragment? `String s1 = "ab"; String s2 = "12"; S2=s2.concat(s1);`
($s1 = ab, s2 = 12$)

What is the value of $3+4\%6/2+5$?
(10)

Given that `int x, y;` and that $x < y$ what is the value of $x \% y$?
(x)

Which of the following best describe the advantage of working with AVL tree?
(It simplifies the complexity searching of the tree)

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