IDESOA12 – In Radix sort algorithm …?

A stable sorting algorithm is used to sort the digits.

IDELI03 – In the ADT of the list data structure, isEmpty() method returns a/an _____ value?

Boolean.

IDHTRE03 – The pre-order traversal sequence of a binary search tree is: 30, 20, 10, 15, 25, 23, 39, 35, 42. Which one of the following is the post-order traversal sequence of the same tree?

15, 10, 23, 25, 20, 35, 42, 39, 30

The following method reverses the item's order of a stack using a queue. Please complete the code of the method?

```
  public static int reverse(SLLStack s)
  {
      ArrayQueue q = new ArrayQueue();
      while (!s.isEmpty())
      {
         StackNode node = Trả lời s.pop()
;
         q.enqueue(node.getData());
      }
      while (Trả lời !q.isEmpty()
)
      {
         StackNode newnode = new StackNode(q.dequeue());
         s.push(Trả lời newNode
);
      }
  }
```

IDETRE07 – What can you say about the following tree?

This is a binary search tree.

IDHSOA07 – Consider an array A where the items are in the range from 1 to n^3. Which of the following sorting algorithms gives the best time efficiency when applied on A?

Radix sort

IDMSOA08 – Which array represents a Min-Heap?

A={2,5,9,8,10,13,12,22,50}

IDHTRE10 – Suppose that we perform pre-order traversal of a binary tree T to get the sequence label "ABCDEXZUTY". Then we perform in-order traversal of the same binary tree to get the sequence label "DCEBAUZTXY" as the result. What is the result if we perform post-order traversal of this tree?

DECBUTZYXA

IDMSQ10 – Suppose that you are implementing an operation named multiDequeue(int k) on a queue contains integer items. This operation will perform dequeue() k times and return the result of the kth dequeue(). Please complete the code of the operation?

m=m-1

IDMAOA15 – Estimate the time complexity in Big-Oh notation, with respect to the input size N for the code below

O(N^2)

IDMSQAS01 – Which is the postfix notation of the following infix expression: ((8+2)*(5+7)-10)*9+3?

8 2 + 5 7 + * 10 - 9 * 3 +

IDMLI05 – In an Array-based list, what does this code do to the list?

Insert an item to the list

IDETRE20 – Compelete the following code of the method inOrderTraversal() in the array-based binary tree implementation?

System.out.print(l[node]+“ ”)

IDEGRA08 – Which of the following is wrong about graph?

Weigh of an edge must be possitive.

IDETRE18 – Complete the following code of the method getParent() in the array-based binary tree implementation?

(node-1)/2

IDEGRA02 – The data structure required for Breadth First Traversal on a graph is?

Queue.

IDESQ07 – In ADT of the Queue data structure, enqueue() method will?

Add a new item to the queue at the rear position.

IDESQAS09 – Which of the following is not an application of the stack data structure?

Message buffering.

IDMSQAS03 – Evaluate the following expression:8 7 + 6 4 + * 2 3 7 + * - 1 -?

129

IDHAOA07 – The method f3(N) calls two methods f1(N) and f2(N) as follows. What is the time complexity of method f3(N)?

O(N^3)

IDMGRA02 – An adjacency matrix representation of a graph cannot contain information of?

Parallel edges.

IDMSQAS08 – The keys 12, 18, 13, 2, 3, 23, 15 and 5 are inserted into an initially empty hash table of length 10 using close hashing with hash function: h(k)=k mod 10 and linear probing. What is the resultant hash table?

B

IDMGRA02 – An adjacency matrix representation of a graph cannot contain information of?

Parallel edges.

IDESQ06 – In the ADT of the Queue data structure, dequeue() method will?

Select one:

Remove an item from the queue at the front position.

IDETRE14 – In the ADT of array-based tree, P[K] indicates?

Select one:

The parent node of node K.

IDELI14 – Which is the common form of a node X in a Doubly Linked List?

Select one:

X(data, prev, next)

IDESOA16 – Which of the following sorting algorithm does not have a worst case time complexity of O(n^2)?

Merge sort.

IDMGRA03 - In an unweighted, undirected connected graph, the shortest path from a node S to every other node is computed most efficiently, in terms of time complexity by?

Select one:

Performing a BFS starting from S.

IDETRE17 – Which of the following is correct about array-based binary implementation using perfect binary tree indexing scheme?

Select one:

The left child and right child of node i are 2i+1 and 2i+2.

IDEGRA03 –

Select one:

The weight of the shortest path from vertex Vi to vertex Vj using intermediate verties in the set {V1..Vk}.

The following method reverses the item's order of a stack using a queue. Please complete the code of the method?

```
  public static int reverse(SLLStack s)
  {
      ArrayQueue q = new ArrayQueue();
      while (!s.isEmpty())
      {
         StackNode node = Trả lời s.pop()
;
         q.enqueue(node.getData());
      }
      while (Trả lời !q.isEmpty()
)
      {
         StackNode newnode = new StackNode(q.dequeue());
         s.push(Trả lời newnode
);
      }
  }
```

IDEGRA02 – The data structure required for Breadth First Traversal on a graph is?

Select one:

Queue.

IDESQAS12 – In a hash table of the size N using linear probing, what is the probing hash function hi(k)?

Select one:

hi(k)=(h(k)+i) mod N.

IDHTRE05 – A complete N-ary tree is a tree which each node has N children or no children. Let I be the number of interior nodes and L be the number of leaves in a complete N-aray tree. If L=41 and I=10, what is the value of N?

Select one:

5

IDESQ01 - Which statement below is wrong concerning to stack data structure?

Select one:

It is a First In First Out (FIFO) list.

IDMSQAS09 – The keys 12, 18, 13, 2, 3, 23, 15 and 5 are inserted into an initially empty hash table of length 10 using open hashing with hash function: h(k)=k mod 10 and separate chaining. What is the resultant hash table?

Select one:

A

IDMAOA06 – Estimate the time complexity in Big-Oh notation, with respect to the input size N, for the code below:

Select one:

O(N^3)

IDMGRA04 – Suppose we run Dijkstra's single source shortest-path algorithm on the following edge weighted directed graph with vertex P as the source. In what order do the nodes get included into the set of vertices for which the shortest path distances are finalized (the cloud set)?

Select one:

P, Q, R, U, S, T

IDHSOA04 – Which of the following sorting algorithms has the minimum number of swap operations in general?

Select one:

Insertion sort

IDMSQAS03 – Evaluate the following expression:8 7 + 6 4 + * 2 3 7 + * - 1 -?

Select one:

129

IDHSQ05 – In the method F below, q is a queue containing integer items. What is the content of q after calling F(), suppose that the rear of the queue is the right most item?

Select one:

9 3 2 4 5

IDMSQ11 – Suppose that you are implementing an operation name multiPop(int k) on a stack contains integer items. This operation will perform pop() k times and return the result of the kth pop(). Please complete the code of the operation?

Select one:

m=m-1

IDEGRA04 – An adjacency matrix representation of a graph cannot contain information of?

Select one:

Parallel edges.

IDELI14 – Which is the common form of a node X in a Doubly Linked List?

Select one:

X(data, prev, next)

IDETRE03 – A binary tree that all its levels except possibly the last, is completely filled and all the node at the last level appear as far left as possible, is known as?

Select one:

Complete binary tree.

IDHTRE07 – Given a binary tree T and a method print() as the following. What will be printed on the screen, if we call: print(T,5);

Select one:

E

IDESOA10 – In Merge sort algorithm …?

The input array is divided into two parts at the middle of the array.

IDMSQAS08 – The keys 12, 18, 13, 2, 3, 23, 15 and 5 are inserted into an initially empty hash table of length 10 using close hashing with hash function: h(k)=k mod 10 and linear probing. What is the resultant hash table?

Select one:

B

IDEGRA06 – If we use adjacency matrix for representing an unweighted graph, we will have?

Select one:

A matrix contains only 0 and 1

IDHAOA05 – What is the time complexity of the recursive method f(i) below?

Select one:

O(N)

IDESQAS04 – What additional requirement is placed on an array, so that binary search may be used to search for a key?

Select one:

The array must be sorted.

IDHTRE09 – Given a binary tree T and a method print() as the following. What will be printed on the screen, if we call: print(T,5);

Select one:

U

IDMAOA09 – Estimate the time complexity in Big-Oh notation, with respect to the input size N for the code below

Select one:

O(N^2)

IDETRE21 – Complete the following code of the method postOrderTraversal() in the array-based binary tree implementation?

Select one:

postOrderTraversal(getRightChild(node))

IDEGRA09 – To implement Dijkstra's shortest path algorithm on unweighted graphs the data structure to be used is?

Select one:

Queue

IDHTRE10 – Suppose that we perform pre-order traversal of a binary tree T to get the sequence label "ABCDEXZUTY". Then we perform in-order traversal of the same binary tree to get the sequence label "DCEBAUZTXY" as the result. What is the result if we perform post-order traversal of this tree?

Select one:

DECBUTZYXA

IDMSQAS05 – Method F below takes a number n as an argument, and use a stack s to do processing. What does the method do in general?

Select one:

Print binary representation of n.

IDHSOA05 – Consider a modified version of Merge sort where the input array is partitioned at the position one-third of the length N of the array. What is the recurrence of this algorithm?

Select one:

T(N)=T(N/3)+T(2N/3)+O(N)

IDETRE05 –How many nodes in a tree has no ancestors?

Select one:

1

IDMGRA02 – An adjacency matrix representation of a graph cannot contain information of?

Select one:

Parallel edges.

IDETRE03 – A binary tree that all its levels except possibly the last, is completely filled and all the node at the last level appear as far left as possible, is known as?

Select one:

Complete binary tree.

IDMSQ12 – A queue q has 5 items. How many items left in q after executing: q.enqueue(q.dequeue())?

Select one:

5

IDESOA16 – Which of the following sorting algorithm does not have a worst case time complexity of O(n^2)?

Select one:

Merge sort.

IDEGRA01 – In an undirected graph with N vertices and E edges, the sum of the degree of each vertex is equal to?

Select one:

2E.

IDHAOA08 – The method f3(N) calls two methods f1(N) and f2(N) as follows. What is the time complexity of method f3(N)?

Select one:

O(N^4)

IDMLI09 - Consider method F in Java and a singly linked list L below. Suppose that H is the head node of the list L. What is the result if we call F(H)?

Select one:

'E'-->'C'-->'A'

IDMSQAS10 – Consider a hash table of size seven, with starting index zero, and a hash function: h(k)=(3k+4) mod 7. Assuming the hash table is initially empty, which of the following is the contents of the table when the sequence 1, 3, 8, 10 is inserted into the table using close hasing with linear probing? Note that '-' denotes an empty location in the table.

Select one:

1, 8, 10, -, -, -, 3

IDHTRE04 – The pre-order traversal sequence of a binary search tree is:70, 40, 20, 30, 60, 50, 90, 80, 100. What is the depth of the binary search tree?

Select one:

3

IDHSQ04 – In the method F below, q1 and q2 are two queues containing integer items. What should method F print on the screen?

Select one:

1 2 3 4 5 6 7 8 9 10

IDHLI04 – Method deleteTail() below is used to delete the last node in a Singly Linked List. Please complete the code of the method?

Select one:

beforeTail.setNext(null)

IDMGRA02 – An adjacency matrix representation of a graph cannot contain information of?

Select one:

Parallel edges.

IDHTRE02 – The pre-order and post-order traversal of a binary tree generates the same output. The tree can have maximum?

Select one:

One node.

IDESQ03 – In the ADT of the Stack data structure, push() method is used to?

Select one:

add an item to the stack.

IDEGRA04 – An adjacency matrix representation of a graph cannot contain information of?

Select one:

Parallel edges.

IDETRE16 – Complete the following code of the method getNodeLabel() in the array-based tree implementation?

Select one:

l[node]

IDHTRE06 – Consider the recursive, nested representation of binary trees: T=(O L R) indicates a binary tree T with the root node O, the left sub-tree L and the right sub-tree R. Note that L and R may be null or further nested. Which of the following represents a valid binary tree?

Select one:

(1 (2 3 4) (5 6 7))

IDMSQAS11 – A characteristic of the data that binary search uses but linear search ignores is the?

Select one:

Order of the elements of the list.

IDETRE01 – A perfect binary tree with 2N+1 nodes contain?

Select one:

N interior nodes.

IDHSOA03 – Given an array A that is almost sorted (only one or two elements are misplaced). Which sorting algorithm gives the best time efficiency when applied on A.

Select one:

Insertion sort

IDMSQAS02 – Which is the prefix notation of the following infix expression:5 + (7 + 9*3)*(2+8)?

Select one:

+ 5 * + 7 * 9 3+ 2 8

IDESQ10 – Complete the code for the dequeue() method in array-based circular queue?

Select one:

front=(front+1)%maxSize

IDESOA15 – What is an operation in which a list of elements is arranged either in ascending order or in descending order?

Select one:

Sorting.

IDMGRA02 – An adjacency matrix representation of a graph cannot contain information of?

Select one:

Parallel edges.

IDMLI04 – In a Singly Linked List implementation, what does this code to to the list?

Select one:

Remove the node at the pos position from the list

IDESQAS05 – What is the best definition of a collision in a hash table?

Select one:

Two entries with different keys have the same exact hash value.

IDEGRA05 – If we use adjacency matrix for representing a weighted undirected graph, we will have?

Select one:

A symmetric matrix over its diagonal

IDHSQ04 – In the method F below, q1 and q2 are two queues containing integer items. What should method F print on the screen?

Select one:

1 2 3 4 5 6 7 8 9 10

IDMGRA04 – Suppose we run Dijkstra's single source shortest-path algorithm on the following edge weighted directed graph with vertex P as the source. In what order do the nodes get included into the set of vertices for which the shortest path distances are finalized (the cloud set)?

Select one:

P, Q, R, U, S, T

IDHTRE01 – One can convert a binary tree into its mirror image by traversing it in?

Post-order.

IDHLI04 – Method deleteTail() below is used to delete the last node in a Singly Linked List. Please complete the code of the method?

Select one:

beforeTail.setNext(null)

IDHSQ01 – Suppose that you are writing a program to evaluate if a given string input has proper closing parenthesis for every opening parenthesis. Which data structure should be used?

Stack.

IDMSQAS10 – Consider a hash table of size seven, with starting index zero, and a hash function: h(k)=(3k+4) mod 7. Assuming the hash table is initially empty, which of the following is the contents of the table when the sequence 1, 3, 8, 10 is inserted into the table using close hasing with linear probing? Note that '-' denotes an empty location in the table.

Select one:

1, 8, 10, -, -, -, 3

IDESQAS04 – What additional requirement is placed on an array, so that binary search may be used to search for a key?

The array must be sorted.

IDETRE08 – What can you say about the following tree?

Select one:

This is an expression tree.

IDMSQAS11 – A characteristic of the data that binary search uses but linear search ignores is the?

Order of the elements of the list.

IDHSOA03 – Given an array A that is almost sorted (only one or two elements are misplaced). Which sorting algorithm gives the best time efficiency when applied on A.

Select one:

Insertion sort

IDMSQ09 – In an array-based circular queue, which operation has time complexity O(N) in the worst-case?

Select one:

No operation that has time complexity O(N).

IDEGRA04 – An adjacency matrix representation of a graph cannot contain information of?

Select one:

Parallel edges.

IDHTRE06 – Consider the recursive, nested representation of binary trees: T=(O L R) indicates a binary tree T with the root node O, the left sub-tree L and the right sub-tree R. Note that L and R may be null or further nested. Which of the following represents a valid binary tree?

Select one:

(1 (2 3 4) (5 6 7))

IDMSOA12 – The Merge method in Merge sort algorithm is used to combine two sorted array A={3,27,38,43} and B={9,10,82}. What is the result array C?

Select one:

C={3,9,10,27,38,43,82}

IDEGRA01 – In an undirected graph with N vertices and E edges, the sum of the degree of each vertex is equal to?

Select one:

2E.

IDETRE09 – Which of the following is wrong about a binary search tree?

Select one:

The value of the left sub-tree is bigger than the value of the root.

IDMAOA13 – Consider three algorithms which have the time complexity in Big-Oh notation below. Please arrange these algorithms in the ascending order of time efficiency (the slowest algorithm is the first one in the order).

Select one:

Algorithm 3, Algorithm 1, Algorithm 2

IDHAOA09 – What is O(T(N)), if

Select one:

O(2^N)

IDMLI12 – What is the number of comparisons needed in the worst case to search for a given node in a Singly Linked List of the length N nodes?

Select one:

N

IDESOA04 – In a stable sort algorithm …?

Select one:

The relative order of elements with equal keys are maintained.

IDMGRA02 – An adjacency matrix representation of a graph cannot contain information of?

Select one:

Parallel edges.

IDESQ03 – In the ADT of the Stack data structure, push() method is used to?

Select one:

add an item to the stack.

IDESQ04 – Which statement is correct about array-based stack?

Select one:

top is the last item of the array.

IDMSQAS05 – Method F below takes a number n as an argument, and use a stack s to do processing. What does the method do in general?

Select one:

Print binary representation of n.

IDEGRA02 – The data structure required for Breadth First Traversal on a graph is?

Select one:

Queue.

IDMAOA10 – Estimate the time complexity in Big-Oh notation, with respect to the input size N for the code below

Select one:

O(N^3)

IDMSQ11 – Suppose that you are implementing an operation name multiPop(int k) on a stack contains integer items. This operation will perform pop() k times and return the result of the kth pop(). Please complete the code of the operation?

Select one:

m=m-1

IDMSQAS11 – A characteristic of the data that binary search uses but linear search ignores is the?

Select one:

Order of the elements of the list.

IDETRE08 – What can you say about the following tree?

Select one:

This is an expression tree.

IDHLI02 – Method reverse() below is used to reverse the order of items in a Singly Linked List. Please complete the code of the method?

Select one:

head=prev

IDELI13 – In a Circular Linked List, if a Node X(data,next) is a tail which is the value of the X's next?

Select one:

head

IDHSQ04 – In the method F below, q1 and q2 are two queues containing integer items. What should method F print on the screen?

Select one:

1 2 3 4 5 6 7 8 9 10

IDMSOA02 – Insertion sort algorithm is used to sort the array A={23,78,45,8,32,56} in the ascending order. What are the items of A after 03 sort pass?

Select one:

A={8,23,45,78,32,56}

IDESQAS10 – Consider a hash table of size seven, with starting index zero, and a hash function h(k)=(3k+4) mod 7. What is the address of the key k=10?

Select one:

6.

IDESOA12 – In Radix sort algorithm …?

Select one:

A stable sorting algorithm is used to sort the digits.

IDETRE18 – Complete the following code of the method getParent() in the array-based binary tree implementation?

Select one:

(node-1)/2

IDHSOA02 – Insertion sort is used to sort an array in the descending order. When does the best case occur?

Select one:

The array is already sorted in the descending order.

IDMLI04 – In a Singly Linked List implementation, what does this code to to the list?

Select one:

Remove the node at the pos position from the list

IDELI06 – In the ADT of the list data structure, remove(int post) method will?

Remove an item at the pos position form the list.

IDHLI05 – Method tailToFront() below moves the last node of a Singly Linked List into the front of the list. Please complete the code of the method?

beforeTail.setNext(null); tail.setNext(head); head=tail;

IDEGRA04 – An adjacency matrix representation of a graph cannot contain information of?

Parallel edges.

IDEGRA09 – To implement Dijkstra's shortest path algorithm on unweighted graphs the data structure to be used is?

Queue

IDHTRE02 – The pre-order and post-order traversal of a binary tree generates the same output. The tree can have maximum?

One node.

IDMAOA09 – Estimate the time complexity in Big-Oh notation, with respect to the input size N for the code below

O(N^2)

IDMGRA02 – An adjacency matrix representation of a graph cannot contain information of?

Parallel edges.

IDESQAS11 – Complete the code below to search for key in an array using linear seach algorithm?

i.

IDESQ01 - Which statement below is wrong concerning to stack data structure?

Select one:

It is a First In First Out (FIFO) list.

IDHTRE01 – One can convert a binary tree into its mirror image by traversing it in?

Select one:

Post-order.

IDETRE18 – Complete the following code of the method getParent() in the array-based binary tree implementation?

(node-1)/2

IDESOA02 - Which statement below is wrong about comparison sorting algorithms?

Select one:

The time complexity of some comparison sorting algorithms can be faster than O(NlogN).

IDMSQAS11 – A characteristic of the data that binary search uses but linear search ignores is the?

Select one:

Order of the elements of the list.

IDHLI01 – Suppose that you want to sort a singly linked list, each list's item is a large object. which of the following sort algorithms should be used to minimum the time complexity?

Select one:

Insertion sort.

IDEGRA04 – An adjacency matrix representation of a graph cannot contain information of?

Select one:

Parallel edges.

IDHSQ06 – In the method F below, s is a stack containing integer items. What is the content of s after calling F(), suppose that the top of the stack is the right most item?

Select one:

3 5 9 2 4

IDETRE01 – A perfect binary tree with 2N+1 nodes contain?

Select one:

N interior nodes.

IDMGRA01 –The maximum degree of any vertex in a simple graph with N vertices is?

Select one:

N-1

IDHTRE07 – Given a binary tree T and a method print() as the following. What will be printed on the screen, if we call: print(T,5);

Select one:

E

IDHTRE09 – Given a binary tree T and a method print() as the following. What will be printed on the screen, if we call: print(T,5);

Select one:

U

IDHSOA02 – Insertion sort is used to sort an array in the descending order. When does the best case occur?

Select one:

The array is already sorted in the descending order.

IDELI14 – Which is the common form of a node X in a Doubly Linked List?

Select one:

X(data, prev, next)

IDESQ16 – What is the result of the following operation on the stack S: S.peek(S.push(X))?

Select one:

X.

IDMSQ05 – In method F below, the stack s contains character items. Which is the result if we call method F with the input string text="datastructure"?

Select one:

erutcurtsatad

IDESQAS11 – Complete the code below to search for key in an array using linear seach algorithm?

Select one:

i.

IDETRE04 – Number of leaf nodes in a perfect binary tree of depth h is?

Select one:

2^h.

IDMSOA11 – An array A contains integer items, each item has 03 digits. A={170,145,275,900,802}. Radix sort algorithm is used to sort A. What is the content of A after the second sort pass?

Select one:

A={900,802,145,170,275}

IDMAOA03 – What is the time complexity of the following algorithm with respect to the input size N

Select one:

O(N)

IDETRE15 – Complete the following code of the method getParent() in the array-based tree implementation?

Select one:

p[node]

IDESOA11 – Which statement is wrong about Quick sort algorithm?

Select one:

A merge algorithm is needed to combine two partitioned arrays.

IDMSQ02 – A queue Q has 05 character items, Q={“A”, “B”, “C”, “D”, “E”} where “E” is the rear and “A” is the front of the queue. What is the content of Q if we perform the following list of operations on the queue: enqueue(“F”)-->dequeue()-->dequeue()-->dequeque()-->enqueue(“D”)?

Select one:

Q={“D”, “E” ,“F” ,“D”}

IDESQ14 – Suppose you enqueue 10, 20, 30, 40 onto a queue, then you dequeue three items. Which one is left on the queue?

Select one:

40

IDESQ01 - Which statement below is wrong concerning to stack data structure?

Select one:

It is a First In First Out (FIFO) list.

IDESQAS10 – Consider a hash table of size seven, with starting index zero, and a hash function h(k)=(3k+4) mod 7. What is the address of the key k=10?

Select one:

6.

IDELI09 – Suppose that X is a node in the middle of the Singly Linked List. Complete the code below to delete all nodes after X from the list?X.setNext(_____);

Select one:

null.

IDELI05 – Which statement is correct about linked-list?

Select one:

Elements of linked-list can be located dinamically and discontinuously.

IDEAOA14 – Suppose that the estimated time complexity of algorithm A and algorithm B is TA(N) and TB(N) respectively. How can we compare the time complexity of A and B?

Select one:

We compare the grow rate of the leading terms of TA(N) and TB(N).

IDESQAS15 – Which of the following statements is used in binary search algorithm to halve the array?

Select one:

middle=(left + right)/2

IDMSQAS02 – Which is the prefix notation of the following infix expression:5 + (7 + 9*3)*(2+8)?

Select one:

+ 5 * + 7 * 9 3+ 2 8

IDESOA01 - Which statement below is wrong in the context of sorting algorithms?

Select one:

The sort key must be numeric.

IDEAOA08 – Which statement is wrong concerning to the best-case time complexity of an algorithm?

Select one:

The best-case is used frequently to analyze the time complexity of algorithms.

IDHSQAS05 - The process of accessing stored in a serial access memory is similar to manipulating data on a?

Select one:

Stack.

IDMAOA03 – What is the time complexity of the following algorithm with respect to the input size N

Select one:

O(N)

IDEGRA07 – Which is the best describe of the graph below?

Select one:

Unweighted, undirected, complete graph.

IDETRE08 – What can you say about the following tree?

Select one:

This is an expression tree.

IDMGRA04 – Suppose we run Dijkstra's single source shortest-path algorithm on the following edge weighted directed graph with vertex P as the source. In what order do the nodes get included into the set of vertices for which the shortest path distances are finalized (the cloud set)?

Select one:

P, Q, R, U, S, T

IDMSQAS08 – The keys 12, 18, 13, 2, 3, 23, 15 and 5 are inserted into an initially empty hash table of length 10 using close hashing with hash function: h(k)=k mod 10 and linear probing. What is the resultant hash table?

Select one:

B

IDHLI05 – Method tailToFront() below moves the last node of a Singly Linked List into the front of the list. Please complete the code of the method?

Select one:

beforeTail.setNext(null); tail.setNext(head); head=tail;

IDMSQ03 – A stack S has 05 character items, S={“5”, “4”, “3”, “2”, “1”} where “1” is the top of S. Which operations must be perform to change S into a new state: S={“5”, “4”, “2”, “3”, “1”}?

Select one:

pop()-->pop()-->pop()-->push(“2”)-->push(“3”)-->push(“1”)

IDMGRA02 – An adjacency matrix representation of a graph cannot contain information of?

Select one:

Parallel edges.

IDHAOA05 – What is the time complexity of the recursive method f(i) below?

Select one:

O(N)

IDHSQ01 – Suppose that you are writing a program to evaluate if a given string input has proper closing parenthesis for every opening parenthesis. Which data structure should be used?

Select one:

Stack.

IDEGRA06 – If we use adjacency matrix for representing an unweighted graph, we will have?

Select one:

A matrix contains only 0 and 1.

IDMSOA05 – A sorting algorithm is used to sort the array A={51,11,56,83,20,26,33} in ascending order. The items of A in each sort pass are listed below. Which sorting algorithm is used?

Select one:

Selection sort

IDHTRE03 – The pre-order traversal sequence of a binary search tree is: 30, 20, 10, 15, 25, 23, 39, 35, 42. Which one of the following is the post-order traversal sequence of the same tree?

Select one:

15, 10, 23, 25, 20, 35, 42, 39, 30

IDELI11 – Complete the code below to insert a new node X at the POS position of a Singly Linked List?

Select one:

Y.getNext().

IDMSQAS11 – A characteristic of the data that binary search uses but linear search ignores is the?

Select one:

Order of the elements of the list.

IDHSQ06 – In the method F below, s is a stack containing integer items. What is the content of s after calling F(), suppose that the top of the stack is the right most item?

Select one:

3 5 9 2 4

IDETRE18 – Complete the following code of the method getParent() in the array-based binary tree implementation?

Select one:

(node-1)/2

IDESOA16 – Which of the following sorting algorithm does not have a worst case time complexity of O(n^2)?

Select one:

Merge sort.

IDHTRE09 – Given a binary tree T and a method print() as the following. What will be printed on the screen, if we call: print(T,5);

Select one:

U

IDHSOA07 – Consider an array A where the items are in the range from 1 to n^3. Which of the following sorting algorithms gives the best time efficiency when applied on A?

Select one:

Radix sort

IDMSQ04 – A queue Q has 05 character items, Q={“5”, “4”, “3”, “2”, “1”} where “1” is the front and “5” is the rear of Q. Which operations must be perform to change Q into a new state: Q={“3”, “2”, “1”, “4”, “5”}?

Select one:

enqueue(“4”)-->enqueue(“5”)-->dequeue()-->dequeue()

IDHAOA08 – The method f3(N) calls two methods f1(N) and f2(N) as follows. What is the time complexity of method f3(N)?

Select one:

O(N^4)

IDESQ03 – In the ADT of the Stack data structure, push() method is used to?

Select one:

add an item to the stack.

IDMLI05 – In an Array-based list, what does this code do to the list?

Select one:

Insert an item to the list

IDETRE05 –How many nodes in a tree has no ancestors?

Select one:

1.

IDMGRA01 –The maximum degree of any vertex in a simple graph with N vertices is?

Select one:

N-1