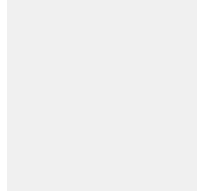


## Câu hỏi 1

Hoàn thành

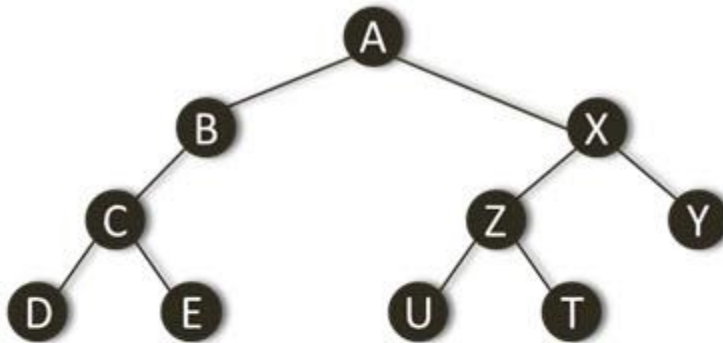
Đạt điểm 0,00 trên 1,00



Đặt cờ

### Đoạn văn câu hỏi

IDHTRE08 –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);



```
int count=0;
public void print(BinaryTree t, int k) {
    if ((t!=null)&&(count<k)) {
        print(t.getLeftSubTree(),k);
        count++;
        if (count==k)
            System.out.print(t.getTreeValue());
        print(t.getRightSubTree(),k);
    }
}
```

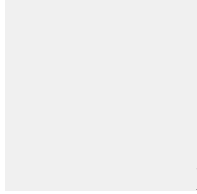
Select one:

- ☐ E
- ☐ U
- ☒ Z
- ☐ A

## Câu hỏi 2

Hoàn thành

Đạt điểm 1,00 trên 1,00



Xóa cờ

### Đoạn văn câu hỏi

In the Floyd-Warshall algorithm, the value:  $D^{(k)}[i][j]$  is?

IDEGRA03 –

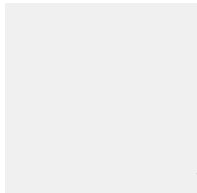
Select one:

- ☐ The number of paths of length K from vertex  $V_i$  to vertex  $V_j$ .
- ☐ The length of the Hamiltonian cycle that has K verties including  $V_i$  and  $V_j$ .
- ☐ The weight of the path from vertex  $V_i$  to vertex  $V_j$  going exactly through K verties.
- ☒ The weight of the shortest path from vertex  $V_i$  to vertex  $V_j$  using intermediate verties in the set  $\{V_1..V_k\}$ .

## Câu hỏi 3

Hoàn thành

Đạt điểm 1,00 trên 1,00



Xóa cờ

### Đoạn văn câu hỏi

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:

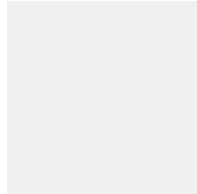
- ☐ TUEDYZCXBA

- ☐ YTUXZEDCBA
- ☒ DECBUTZYXA
- ☐ YXTZUABECD

#### Câu hỏi 4

Hoàn thành

Đạt điểm 0,00 trên 1,00



Xóa cờ

#### Đoạn văn câu hỏi

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

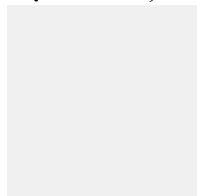
Select one:

- ☒ The sort key must be numeric.
- ☐ The time complexity of some sorting algorithms can be faster than  $O(N \log N)$ .
- ☐ Stability and efficiency are two characteristics of a sorting algorithm.
- ☐ Sorting algorithms rearrange a sequence of elements into numerical order based on the sort key.

#### Câu hỏi 5

Hoàn thành

Đạt điểm 1,00 trên 1,00



Đặt cờ

#### Đoạn văn câu hỏi

IDHSOA06 – Which of the following sorting algorithms has the lowest worst case time complexity?

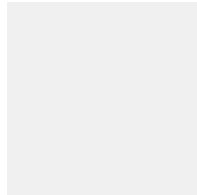
Select one:

- ☐ Insertion sort
- ☒ Merge sort
- ☐ Bubble sort
- ☐ Quick sort

### Câu hỏi 6

Hoàn thành

Đạt điểm 1,00 trên 1,00



Đặt cờ

### Đoạn văn câu hỏi

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?

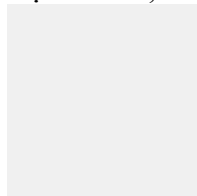
Select one:

- ☐ (1 (2 3 null) (4 5))
- ☐ (1 (2 3) (4 5) (6 7))
- ☐ (1 2 3 4 5 6 7)
- ☒ (1 (2 3 4) (5 6 7))
- ☐ (1 (2 3 4) (5 6) 7)

### Câu hỏi 7

Hoàn thành

Đạt điểm 0,00 trên 1,00



Xóa cờ

### Đoạn văn câu hỏi

IDMAOA02 – What is the time complexity of the following algorithm with respect to the input

```
Algorithm: Search(A, n, m)
Input: An array A stores n sorted integer. An integer m.
Output: An integer i that a[i]=m.
        -1 if m doesn't appear in the array.

For i ← 0 to n-1 do
    If (a[i] = m) then
        Return i;
```

size N

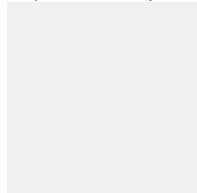
Select one:

- ☐  $O(N-1)$
- ☒  $O(2N)$
- ☐  $O(N^2)$
- ☒  $O(N)$

### Câu hỏi 8

Hoàn thành

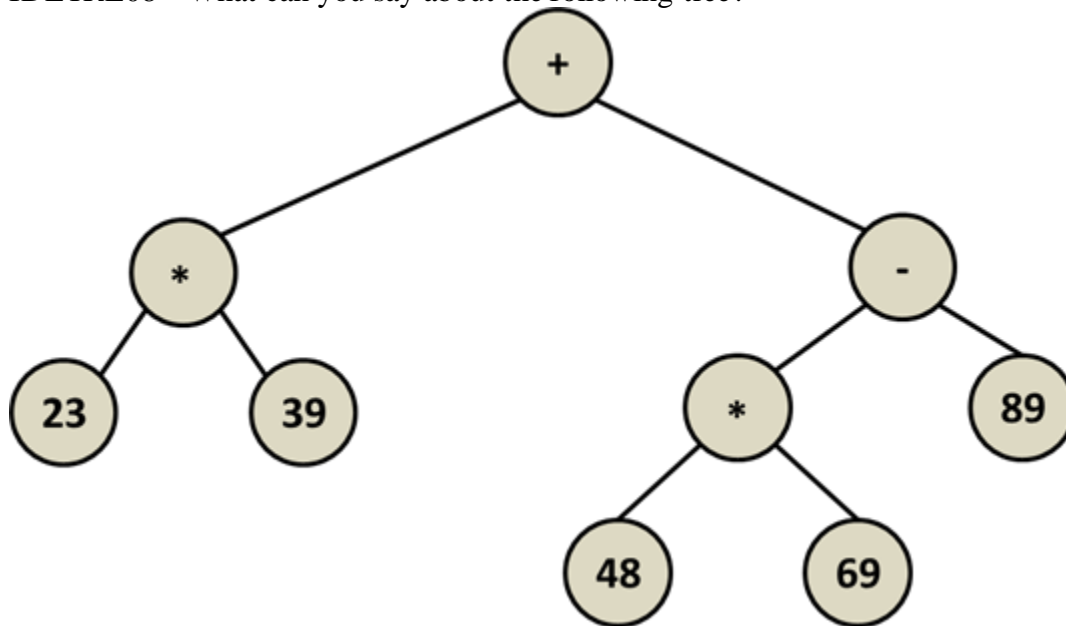
Đạt điểm 1,00 trên 1,00



Đặt cờ

Đoạn văn câu hỏi

IDETRE08 – What can you say about the following tree?



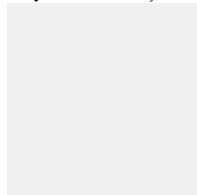
Select one:

- ☐ This is a tree with string label.
- ☐ This is a binary search tree.
- ☒ This is an expression tree.
- ☐ This is a binary tree.

### Câu hỏi 9

Hoàn thành

Đạt điểm 0,00 trên 1,00



Xóa cờ

### Đoạn văn câu hỏi

IDHAOA01 – What is the time complexity of the following code with respect to the input size

```
sum=0;
for(int j=1; j<n; j*=2){
    sum++;
}
```

N?

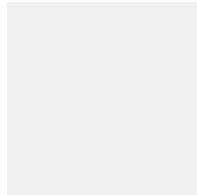
Select one:

- ☐  $O(\log N)$
- ☐  $O(1)$
- ☒  $O(N)$
- ☐  $O(N^2)$

### Câu hỏi 10

Hoàn thành

Đạt điểm 0,00 trên 1,00



Xóa cò

### Đoạn văn câu hỏi

IDETRE23 –Complete the following code of the method `getMin()` in the binary search tree

```
public int getMin(BinarySearchTree t) {
    if (t.getLeftSubTree() == null)
        return t.getTreeValue();
    return getMin(_____);
}
```

implementation?

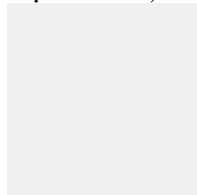
Select one:

- ☐ `t.getRightSubTree()`
- ☒ `t.getTreeValue()`
- ☐ `t.getLeftSubTree(), t.getRightSubTree()`
- ☒ `t.getLeftSubTree()`

### Câu hỏi 11

Hoàn thành

Đạt điểm 0,00 trên 3,00



Đặt cò

## Đoạn văn câu hỏi

The following method implement the recursive version of the binary search algorithm. Please complete the code of the method?

```
public static int BinarySearch(int []a, int key, int left,
int right)
{
    if (left > right)
        Trả lời 
```

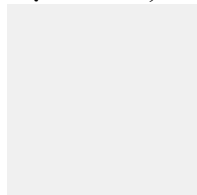
Đạt điểm 0,00 trên 1,00

```
    ;
    else
    {
        int mid = (left + right)/2;
        if (Trả lời 
Đạt điểm 0,00 trên 1,00
    )
        return BinarySearch(a, key, mid+1, right);
    else
    {
        if (a[mid]>key)
            return BinarySearch(a, key, left, Trả lời 
Đạt điểm 0,00 trên 1,00
    );
        else
            return mid;
    }
}
```

## Câu hỏi 12

Hoàn thành

Đạt điểm 1,00 trên 1,00



Đặt cờ



### Đoạn văn câu hỏi

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?

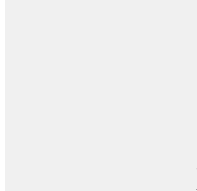
Select one:

- ☐ Heap sort.
- ☐ Bubble sort.
- ☐ Quick sort.
- ☒ Insertion sort.

### Câu hỏi 13

Hoàn thành

Đạt điểm 0,00 trên 1,00



Xóa cờ

### Đoạn văn câu hỏi

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

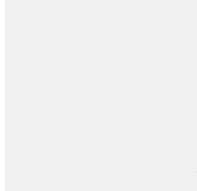
Select one:

- ☒ X.
- ☐ S.push(X).
- ☐ S.top.
- ☐ Null.

### Câu hỏi 14

Hoàn thành

Đạt điểm 0,00 trên 1,00



Xóa cờ

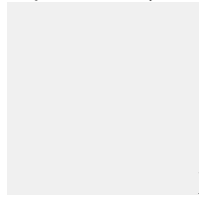
### Đoạn văn câu hỏi

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

- ☐ Parallel edges.
- ☐ Nodes.
- ☒ Direction of edges.
- ☐ Edges.

### Câu hỏi 15

Hoàn thành  
Đạt điểm 0,00 trên 1,00



Xóa cờ

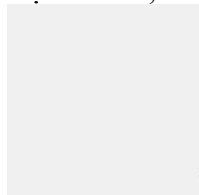
### Đoạn văn câu hỏi

IDESQAS02 – What is the worst-case time for binary search finding a single item in an array?  
Select one:

- ☒ Linear time.
- ☒ Logarithmic time
- ☐ Constant time.
- ☐ Quadratic time.

### Câu hỏi 16

Hoàn thành  
Đạt điểm 0,00 trên 1,00



Xóa cờ

### Đoạn văn câu hỏi

IDHSQ03 – In the method F below, s1 and s2 are two stacks containing integer items. What should method F print on the screen?

```
public static void F()
{
    Stack s1=new Stack();
    Stack s2=new Stack();
    for (int i=1; i<10; i=i+2)
    {
        s1.push(i);
        s2.push(i+1);
    }
    while (!s1.isEmpty())
    {
        System.out.print(s1.pop()+ " ");
        System.out.print(s2.pop()+ " ");
    }
}
```

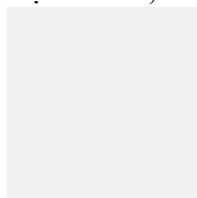
Select one:

- ☒ 1 2 3 4 5 6 7 8 9 10
- ☐ 9 7 5 3 1 10 8 6 4 2
- ☐ 10 9 8 7 6 5 4 3 2 1
- ☐ 9 10 7 8 5 6 3 4 1 2
- ☐ 1 3 5 7 9 2 4 6 8 10

### Câu hỏi 17

Hoàn thành

Đạt điểm 0,00 trên 1,00



Xóa cờ

### Đoạn văn câu hỏi

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

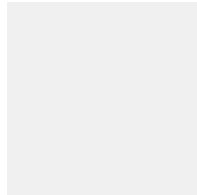
Select one:

- ☐ Tree
- ☒ Stack
- ☐ Heap
- ☒ Queue

### Câu hỏi 18

Hoàn thành

Đạt điểm 0,00 trên 1,00



Xóa cờ

### Đoạn văn câu hỏi

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?

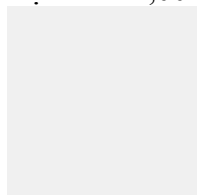
Select one:

- ☐ Performing a DFS starting from S.
- ☐ Warshall's algorithm.
- ☒ Dijkstra's algorithm starting from S.
- ☒ Performing a BFS starting from S.

### Câu hỏi 19

Hoàn thành

Đạt điểm 1,00 trên 1,00



Xóa cờ

### Đoạn văn câu hỏi

IDMLI07 – 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)?

```
public void F(SLNode node)
{
    if (node != null)
    {
        F(node.getNext());
        System.out.println(node.getData());
    }
}

L={ 'A' --> 'B' --> 'C' --> 'D' --> 'E' --> 'F' }
H is the head node of L, H= 'A'
```

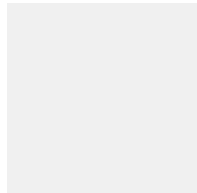
Select one:

- ☐ 'A'-->'C'-->'E'
- ☐ 'A'-->'B'-->'C'-->'D'-->'E'-->'F'
- ☒ 'F'-->'E'-->'D'-->'C'-->'B'-->'A'
- ☐ 'B'-->'D'-->'F'

## Câu hỏi 20

Hoàn thành

Đạt điểm 0,00 trên 1,00



Xóa cờ

## Đoạn văn câu hỏi

IDMSOA07 – Quick sort algorithm is used to sort the array A={55,81,39,92,18,47,63,99,16}.

Suppose that the first array element is chosen as the pivot for partitioning. What is the array after the first partition?

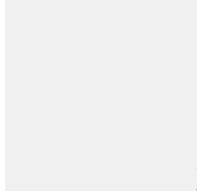
Select one:

- ☐ A={99,81,92,63,55,39,47,18,16}
- ☒ A={18,16,39,47,55,92,63,99,81}
- ☐ A={55,16,39,47,18,92,63,99,81}
- ☐ A={55,99,81,63,92,47,39,16,18}

## Câu hỏi 21

Hoàn thành

Đạt điểm 0,00 trên 1,00



Xóa cờ

### Đoạn văn câu hỏi

IDHSQAS04 – If  $h(k)$  is any hash function and is used to hash  $N$  keys into a table of size  $M$ , where  $N < M$ , the expected number of collisions involving a particular key  $X$  is?

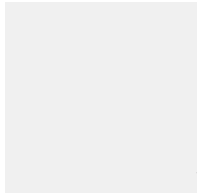
Select one:

- ☐ Less than  $N$
- ☐ Less than  $M$
- ☒ Less than  $(N+M)/2$
- ☐ Less than 1.

## Câu hỏi 22

Hoàn thành

Đạt điểm 0,00 trên 1,00



Xóa cờ

### Đoạn văn câu hỏi

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

```
public void inOrderTraversal(int node) {  
    if (l[node] != null) {  
        inOrderTraversal(getLeftChild(node));  
        _____;  
        inOrderTraversal(getRightChild(node));  
    }  
}
```

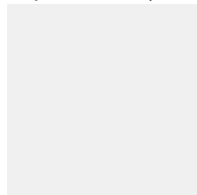
Select one:

- ☐ System.out.print(l[node]+" ")
- ☒ return inOrderTraversal(getRightChild(node))
- ☐ return inOrderTraversal(getLeftChild(node))
- ☐ System.out.print(l[getLeftChild(node)]+" ")

### Câu hỏi 23

Hoàn thành

Đạt điểm 0,00 trên 1,00



Xóa cờ

### Đoạn văn câu hỏi

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:  $h(k)=k \bmod 10$  and linear probing.

What is the resultant hash table?

|          |    |
|----------|----|
| 0        |    |
| 1        |    |
| 2        | 12 |
| 3        | 3  |
| 4        | 2  |
| 5        | 5  |
| 6        | 15 |
| 7        | 13 |
| 8        | 18 |
| 9        | 23 |
| <b>A</b> |    |

|          |    |
|----------|----|
| 0        |    |
| 1        |    |
| 2        | 12 |
| 3        | 13 |
| 4        | 2  |
| 5        | 3  |
| 6        | 23 |
| 7        | 15 |
| 8        | 18 |
| 9        | 5  |
| <b>B</b> |    |

|          |    |
|----------|----|
| 0        |    |
| 1        |    |
| 2        | 2  |
| 3        | 3  |
| 4        |    |
| 5        | 5  |
| 6        |    |
| 7        |    |
| 8        | 18 |
| 9        |    |
| <b>C</b> |    |

|          |    |
|----------|----|
| 0        | 2  |
| 1        | 3  |
| 2        | 12 |
| 3        | 13 |
| 4        | 23 |
| 5        | 5  |
| 6        | 15 |
| 7        |    |
| 8        | 18 |
| 9        |    |
| <b>D</b> |    |

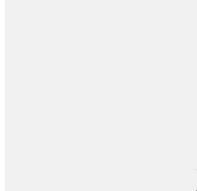
Select one:

- ☐ D  
☐ C  
☒ A  
☐ B

## Câu hỏi 24

Hoàn thành

Đạt điểm 0,00 trên 1,00



Xóa cờ

## Đoạn văn câu hỏi

IDHАОA04 – What is  $O(f(N))$  if

$$f(N) = N \log N^5 + 5N$$

Select one:

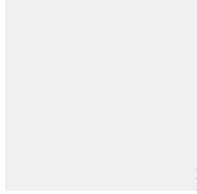
- ☐  $O(N)$   
☒  $O(\log N)$  sai  
☐  $O(N^6)$  sai  
☐  $O(N \log N)$



### Câu hỏi 25

Hoàn thành

Đạt điểm 0,00 trên 1,00



Đặt cờ

#### Đoạn văn câu hỏi

IDELI10 – Suppose that X is a node in the middle of the Singly Linked List. Complete the code below to delete one node right after X from the list? `X.setNext( _____ );`

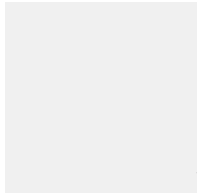
Select one:

- ☐ tail.
- ☐ X.getNext().
- ☒ X.getNext().getNext().
- ☐ null.

### Câu hỏi 26

Hoàn thành

Đạt điểm 1,00 trên 1,00



Xóa cờ

#### Đoạn văn câu hỏi

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:  $h(k) = k \bmod 10$  and separate chaining.

What is the resultant hash table?

|   |               |
|---|---------------|
| 0 |               |
| 1 |               |
| 2 | 12 -> 2       |
| 3 | 13 -> 3 -> 23 |
| 4 |               |
| 5 | 15 -> 5       |
| 6 |               |
| 7 |               |
| 8 | 18            |
| 9 |               |
| A |               |

|   |    |
|---|----|
| 0 |    |
| 1 |    |
| 2 | 12 |
| 3 | 13 |
| 4 | 2  |
| 5 | 3  |
| 6 | 23 |
| 7 | 15 |
| 8 | 18 |
| 9 | 5  |
| B |    |

|   |    |
|---|----|
| 0 |    |
| 1 |    |
| 2 | 2  |
| 3 | 3  |
| 4 | 12 |
| 5 | 5  |
| 6 | 13 |
| 7 | 23 |
| 8 | 18 |
| 9 | 15 |
| C |    |

|   |               |
|---|---------------|
| 0 |               |
| 1 |               |
| 2 | 2 -> 12       |
| 3 | 23 -> 3 -> 13 |
| 4 |               |
| 5 | 5 -> 15       |
| 6 |               |
| 7 |               |
| 8 | 18            |
| 9 |               |
| D |               |

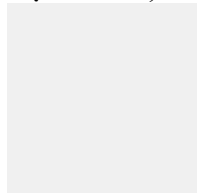
Select one:

- ☐ B
- ☒ A
- ☐ C
- ☐ D

### Câu hỏi 27

Hoàn thành

Đạt điểm 1,00 trên 1,00



Xóa cờ

Đoạn văn câu hỏi

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"?

```
public static void F(String text)
{
    Stack s=new Stack();
    for (int i=0; i<text.length(); i++)
        s.push(text.charAt(i));
    while (!s.isEmpty())
        System.out.print(s.pop());
}
```

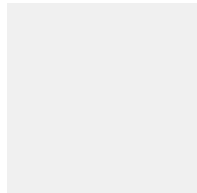
Select one:

- ☐ erutcurtsataderutcurtsatad
- ☒ erutcurtsatad
- ☐ datastructure
- ☐ datastructuredatastructure

## Câu hỏi 28

Hoàn thành

Đạt điểm 0,00 trên 1,00



Đặt cờ

## Đoạn văn câu hỏi

IDETRE10 –Which of the following is correct about an expression tree?

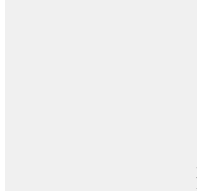
Select one:

- ☐ Post-order traversal of an expression tree will result the corresponding expression in pre-fix notation.
- ☐ A leaf node's label can be either an operand or an operator.
- ☒ If an interior node has two children, then this node's label must be an operator.
- ☐ Pre-order traversal of an expression tree will result the corresponding expression in post-fix notation.

## Câu hỏi 1

Hoàn thành

Đạt điểm 1,00 trên 1,00



Đặt cờ

### Đoạn văn câu hỏi

IDMLI03 – In an Array-based list, what does this code do to the list?

```
for (int i=pos-1;i<length;i++)  
    items[i]=items[i+1];  
length--;
```

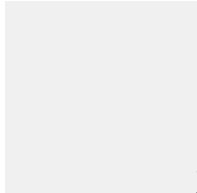
Select one:

- ☐ Traversing the list.
- ☐ Duplicate items in the list.
- ☒ Remove an item from the list.
- ☐ Remove all item from the list except one.

### Câu hỏi 2

Hoàn thành

Đạt điểm 1,00 trên 1,00



Xóa cờ

### Đoạn văn câu hỏi

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

```
public void deleteTail()
{
    int pos = getLength();
    SLNode beforeTail=traversing(pos-1) ;
    _____;
}
```

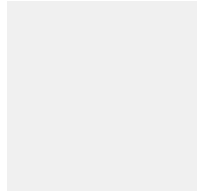
Select one:

- ☐ beforeTail = tail
- ☐ beforeTail.setNext(tail)
- ☐ beforeTail = null
- ☒ beforeTail.setNext(null)

### Câu hỏi 3

Hoàn thành

Đạt điểm 0,00 trên 1,00



Đặt cờ

### Đoạn văn câu hỏi

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?

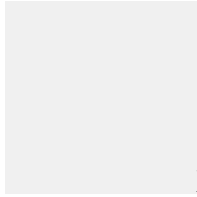
Select one:

- ☒ Complete binary tree.
- ☐ Left most binary tree.
- ☐ Full binary tree.
- ☐ Perfect binary tree.

### Câu hỏi 4

Hoàn thành

Đạt điểm 0,00 trên 1,00



Xóa cờ

### Đoạn văn câu hỏi

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

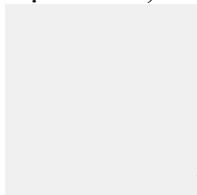
Select one:

- ☐ Remove all items from the list.
- ☒ Remove an item at the pos position form the list.
- ☐ Remove the first item from the list.
- ☐ Remove the last item form the list.

### Câu hỏi 5

Hoàn thành

Đạt điểm 1,00 trên 1,00



Xóa cờ

### Đoạn văn câu hỏi

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

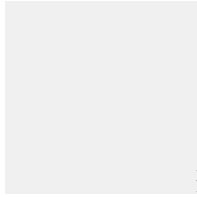
Select one:

- ☒ N-1
- ☐ N
- ☐ 2N
- ☐ 2N-1

### Câu hỏi 6

Hoàn thành

Đạt điểm 0,00 trên 1,00



Đặt cờ

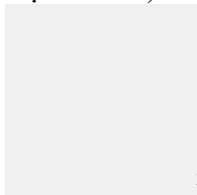
### Đoạn văn câu hỏi

IDESQAS14 – In the context of search algorithms, which of the following statements are true?  
Select one:

- ☒ Binary search is faster than linear search, but it requires a sorted array.
- ☐ Linear search is faster than binary search.
- ☐ Binary search is the fastest search algorithm.
- ☐ Hash data structure is used to support sorting.

### Câu hỏi 7

Hoàn thành  
Đạt điểm 1,00 trên 1,00



Đặt cờ

### Đoạn văn câu hỏi

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.
- ☐ Length of the list.
- ☐ Maximum and minimum value of the list.
- ☐ Type of the list.

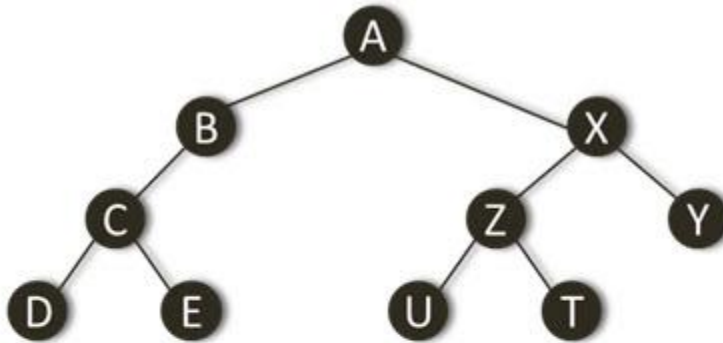
### Câu hỏi 8

Hoàn thành  
Đạt điểm 0,00 trên 1,00

Đặt cờ

### Đoạn văn câu hỏi

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);



```
int count=0;
public void print(BinaryTree t, int k) {
    if ((t!=null)&&(count<k)) {
        print(t.getLeftSubTree(),k);
        print(t.getRightSubTree(),k);
        count++;
        if (count==k)
            System.out.print(t.getTreeValue());
    }
}
```

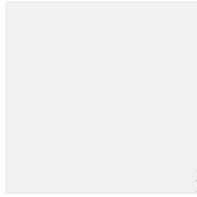
Select one:

- ☐ U
- ☐ E
- ☒ Z sai
- ☐ A

### Câu hỏi 9

Hoàn thành  
Đạt điểm 0,00 trên 1,00





Đặt cờ

### Đoạn văn câu hỏi

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

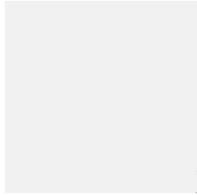
Select one:

- ☒ Two nodes
- ☐ Three nodes
- ☐ Any number of nodes.
- ☐ One node.

### Câu hỏi 10

Hoàn thành

Đạt điểm 1,00 trên 1,00



Xóa cờ

### Đoạn văn câu hỏi

IDMAOA05 – What is the time complexity of the following algorithm with respect to the input

```
Algorithm sum(n)
Input: an integer n
Output: the sum  $S = \sum_{i=1}^n i^3$ 

s ← 0
for i ← 1 to n do
    s = s + i * i * i;
return s;
```

size N

Select one:

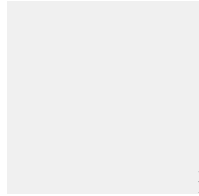
- ☐ O(1)

- ☐  $O(2N)$
- ☒  $O(N)$
- ☐  $O(N^2)$

### Câu hỏi 11

Hoàn thành

Đạt điểm 1,00 trên 1,00



Đặt cờ

### Đoạn văn câu hỏi

IDEGRA08 – Which of the following is wrong about graph?

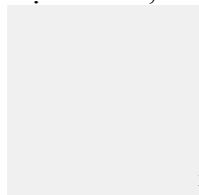
Select one:

- ☐ Adjacency matrix is an appropriate representation of a graph.
- ☐ Adjacency list is an appropriate representation of a graph.
- ☒ Weigh of an edge must be positive.
- ☐ Weight of an edge can be negative.

### Câu hỏi 12

Hoàn thành

Đạt điểm 0,00 trên 1,00



Đặt cờ

### Đoạn văn câu hỏi

IDESQ12 – Which of the following statement is true?

Select one:

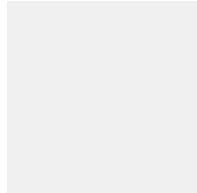
- ☒ The contents of a queue can wrap around, while those of a stack can not.
- ☐ The top of a stack corresponds to the front of a queue.

- ☒ In both the array-based stack and queue, when removing an item the corresponding index is increased by 1.
- ☐ The pop() operation on a stack is simpler than the dequeue() operation on a queue.

### Câu hỏi 13

Hoàn thành

Đạt điểm 0,00 trên 1,00



Đặt cờ

### Đoạn văn câu hỏi

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

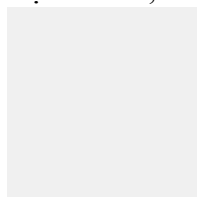
Select one:

- ☒ Queue.
- ☐ Binary Tree.
- ☒ Stack.
- ☐ Heap.

### Câu hỏi 14

Không trả lời

Đạt điểm 3,00



Xóa cờ

### Đoạn văn câu hỏi

This method implement an  $O(N)$  algorithm to rearrange array  $x$  so that the left part is the elements that is smaller than  $p$ , the right part is the elements that is bigger than  $p$ . Please complete the code for this method?

```

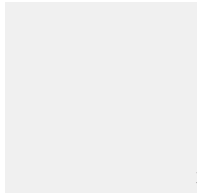
public static void rearrange(int [] x, int p)
{
    int left=0;
    int right=x.length-1;
    while (Trả lời )
    {
        while ((x[left]<p)&&(left<x.length))
            Trả lời  ;
        while ((x[right]>p)&&(right>=0))
            Trả lời  ;
        if (left<right)
        {
            int tmp=x[left];
            x[left]=x[right];
            x[right]=tmp;
        }
    }
}

```

### Câu hỏi 15

Hoàn thành

Đạt điểm 0,00 trên 1,00



Đặt cờ

### Đoạn văn câu hỏi

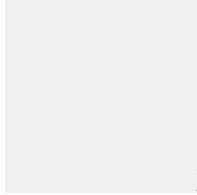
IDEGRA06 – If we use adjacency matrix for representing an unweighted graph, we will have?  
Select one:

- ☐ A symmetric matrix contains only 0 and 1.
- ☒ A matrix contains only 0 and 1.
- ☐ A symmetric matrix over its diagonal.
- ☐ An asymmetric matrix.

### Câu hỏi 16

Hoàn thành

Đạt điểm 0,00 trên 1,00



Xóa cờ

### Đoạn văn câu hỏi

IDHSQ02 – A single array  $A[1..maxSize]$  is used to implement two stacks. The two stacks grow from opposite ends of the array. Variable  $top1$  and  $top2$  indicate the top position of each stack. What is the condition for “stack full” state?

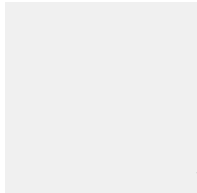
Select one:

- ☐  $((top1 == maxSize/2) \&\& (top2 == maxSize/2))$ .
- ☒  $((top1 == maxSize/2) \parallel (top2 == maxSize/2))$ . sai
- ☐  $top1 + top2 == maxSize$ .
- ☐  $top1 == top2 - 1$ .

### Câu hỏi 17

Hoàn thành

Đạt điểm 0,00 trên 1,00



Xóa cờ

### Đoạn văn câu hỏi

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?

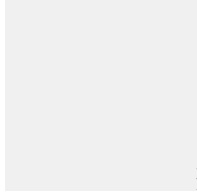
Select one:

- ☐ 5
- ☐ 2
- ☒ 4
- ☐ 3 : có thể đúng

### Câu hỏi 18

Hoàn thành

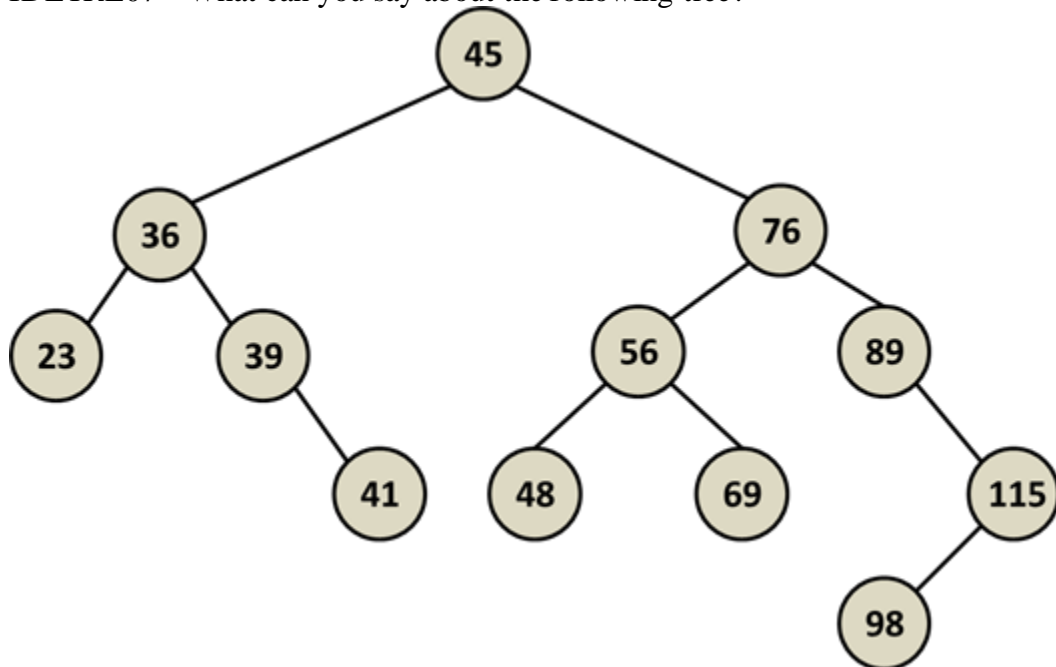
Đạt điểm 0,00 trên 1,00



Đặt cờ

### Đoạn văn câu hỏi

IDETRE07 – What can you say about the following tree?



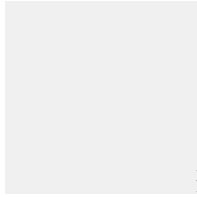
Select one:

- ☒ This is a binary tree.
- ☐ This is a heap.
- ☒ This is a binary search tree.
- ☐ This is a tree with integer labels.

### Câu hỏi 19

Hoàn thành

Đạt điểm 0,00 trên 1,00



Đặt cờ

### Đoạn văn câu hỏi

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?

```
public int multiDequeue(int k)
{
    int m=k;
    int result;
    while ((!isEmpty()) && (m>0))
    {
        result=dequeue();
        ----;
    }
    return result;
}
```

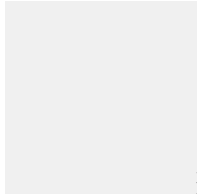
Select one:

- ☒ m=m-1
- ☐ k=k-1
- ☐ enqueue(k)
- ☐ dequeue(k)

### Câu hỏi 20

Hoàn thành

Đạt điểm 1,00 trên 1,00



Đặt cờ

### Đoạn văn câu hỏi

IDHAOA02 – An algorithm that has the time complexity  $O(N\log N)$  spends 3 seconds to finish running with the input size  $N=1,000$ . Assuming that total number of primitive execution  $T(N)$  is directly proportional to  $N\log N$ , or  $T(N)=C.(N\log N)$  where  $C$  is a constant. Estimate how long this algorithm runs with the input size  $N=10,000$ ?

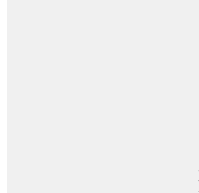
Select one:

- ☐ 50 seconds
- ☒ 40 seconds
- ☐ 60 seconds
- ☐ 30 seconds

### Câu hỏi 21

Hoàn thành

Đạt điểm 0,00 trên 1,00



Đặt cờ

### Đoạn văn câu hỏi

IDHAOA10 – What is  $O(T(N))$ , if

$$T(n) = \begin{cases} 1 & \text{if } n = 0 \\ T(n/2) + 1 & \text{otherwise} \end{cases}$$

Select one:

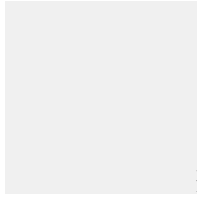
- ☐  $O(N\log N)$  sai
- ☒  $O(N^2)$
- ☐  $O(\log N)$
- ☐  $O(2^N)$

### Câu hỏi 22

Hoàn thành

Đạt điểm 1,00 trên 1,00





Đặt cờ

### Đoạn văn câu hỏi

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

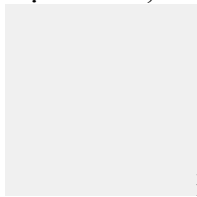
Select one:

- ☐ The label of node K.
- ☐ The left most child of node K.
- ☐ The first right sibling of node K.
- ☒ The parent node of node K.

### Câu hỏi 23

Hoàn thành

Đạt điểm 0,00 trên 1,00



Đặt cờ

### Đoạn văn câu hỏi

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

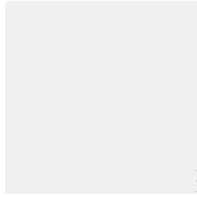
Select one:

- ☒ Quick sort.
- ☐ Insertion sort.
- ☒ Merge sort.
- ☐ Buble sort.

### Câu hỏi 24

Hoàn thành

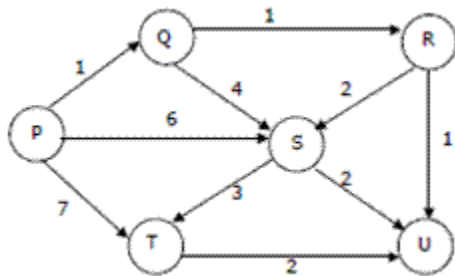
Đạt điểm 1,00 trên 1,00



Đặt cờ

### Đoạn văn câu hỏi

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)?



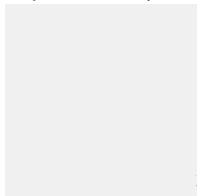
Select one:

- ☐ P, Q, T, R, U, S
- ☒ P, Q, R, U, S, T
- ☐ P, Q, R, U, T, S
- ☐ P, Q, R, S, T, U

### Câu hỏi 25

Hoàn thành

Đạt điểm 0,00 trên 1,00



Đặt cờ

### Đoạn văn câu hỏi

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

```
public int getParent(int node) {  
    return (int)Math.floor(_____);  
}
```

tree implementation?

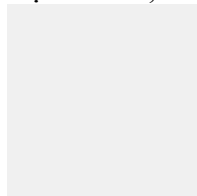
Select one:

- ☒ (node-1)/2
- ☐ node/2
- ☐ (node+1)/2
- ☐ node\*2

## Câu hỏi 26

Hoàn thành

Đạt điểm 0,00 trên 1,00



Đặt cờ

## Đoạn văn câu hỏi

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?

```
public void F(int n)  
{  
    Stack s = new Stack();  
    while (n>0)  
    {  
        s.push(n % 2);  
        n = n / 2;  
    }  
    while (!s.isEmpty())  
        System.out.print(s.pop());  
}
```

Select one:

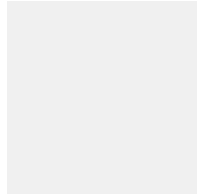
- ☐ Print all positive even number that is smaller than n in reverse order.

- ☐ Print binary representation of n.
- ☐ Print all positive even number that is smaller than n.
- ☒ Print binary representation of n in reverse order.

### Câu hỏi 27

Hoàn thành

Đạt điểm 0,00 trên 1,00



Xóa cờ

### Đoạn văn câu hỏi

IDMSOA09 – Which array represents a Max-Heap?

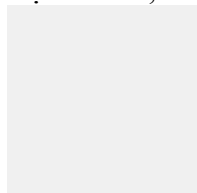
Select one:

- ☐ A={ 8,78,56,32,15,23,45 }
- ☐ A={ 78,23,15,56,32,8,45 }
- ☒ A={ 78,56,45,32,23,8,15 }
- ☐ A={ 8,15,23,32,56,45,78 }

### Câu hỏi 28

Hoàn thành

Đạt điểm 0,00 trên 1,00



Đặt cờ

### Đoạn văn câu hỏi

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

- ☐ Quick sort
- ☐ Bubble sort
- ☒ Selection sort