Data Structure Mock CCEE

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Thanks for taking the mock. Schedule of next mock will be shared to you in the group. Please keep an eye on the group.

Your score: 52% 21/40
Duration: 0:12:18

1. How many numbers of comparisons will be done in worst case using Binary Search if the number of elements in the array are 32? 1 / 1 point

Your Answer: ✔ **Correct**

- ○ 10
- ○ 2
- ✔ ◉ 5
- ○ 4

2. if the list is a circular linked list with first point to the first node and temp points to the last node .Which of the following code snippet will delete a node, which is after temp? 0 / 1 point

class Node{

int data;

Node next;

}

Your Answer: ✖ **Incorrect**

- ✖ ◉ mynode=first;

  mynode.next = temp.next;

  mynode.next=first;
- ○ mynode=first;

  temp.next = mynode;

  mynode.next=first;

✔ ○ temp.next = first.next;

mynode=first;

first=first.next;

mynode.next=null;

○ None of the above

3. In singly linked list if headpoints to the first node, which of the following code will print data in the last node? 1 / 1 point

Your Answer: ✔ **Correct**

○ temp=head;

while(temp!= null){

temp=temp.next;

}

System.out.println(temp.data);

✔ ◉ temp=head;

while(temp.next != null){

temp=temp.next;

}

System.out.println(temp.data);

○ temp=head;

while(temp.next == null){

temp=temp.next;

}

System.out.println(temp.data);

○ temp=head;

while(temp == null){

temp=temp.next;

}

System.out.println(temp.data);

4. What is the worst case time complexity of Search()operation in an unbalanced Binary Search Tree having 'n' nodes? 1 / 1 point

Your Answer: ✔ **Correct**

○ O(1)

○ O(log n)

✔ ◉ O(n)

○ O(nlogn)

5. In computational thinking terms, breaking down a complex problem into smaller,more specific sub-problems is called as _____ 1 / 1 point

Your Answer: ✔ **Correct**

○ Problem Identification

✔ ◉ Decomposition

○ Pattern Recognition

○ Algorithmic Thinking

6. Conside the stack shown below 0 / 1 point

12 11 34 56 5 45 4 45

|

top

After performing the following operations in sequence, which value will be at top of the stack?
pop,pop,pop,push 29,push 30,pop,pop,pop

Your Answer: ✖ **Incorrect**

- ○ 29
- ○ 30
- ✖ ◉ 5
- ✔ ○ 56

7. Which of the given options provides the increasing order of asymptotic complexity of functions f1,f2,f3 and f4? 0 / 1 point

f1(n)=2^n;

f2(n)=n^(3/2)

f3(n)=nLogn

f4(n)=n^(Logn)

Your Answer: ✖ **Incorrect**

- ✔ ○ f3,f2,f4,f1
- ✖ ◉ f3,f2,f1,f4
- ○ f2,f3,f1,f4
- ○ f2,f3,f4,f1

8. Which node pointer should be updated if a new node B is to be inserted in the middle of A and C nodes of a doubly linked list? 1 / 1 point

Your Answer: ✔ **Correct**

- ○ Next pointer of A, Previous Pointer of B, Next Pointer of C, and Previous of C
- ✔ ◉ Next pointer of A, Previous of B, Next of B, and Previous of C
- ○ Next Pointer of A, Previous Pointer of A, next pointer of B, and Previous Pointer of C
- ○ None of the Above

9. Which of the following algorithm can be used to efficiently sort a linked list? 0 / 1 point

Your Answer: ✖ **Incorrect**

✔ ○ Merge Sort

✖ ◉ Quick Sort

○ Heap Sort

○ Selection Sort

10. What is the maximum height of any AVL Tree with 7 nodes?Assume that height of a tree with single node is 0. 0 / 1 point

Your Answer: ✖ **Incorrect**

○ 2

✔ ○ 3

✖ ◉ 4

○ 5

11. The time complexity of merge sort algorithm is _____. 0 / 1 point

Your Answer: ✖ **Incorrect**

○ O(n)

○ O(log n)

✖ ◉ O(n^2)

✔ ○ O(nlog n)

12. In Hash Table, which collision handling technique results in Secondary Clustering? 0 / 1 point

Your Answer: ✖ **Incorrect**

✖ ◉ Mid-Square

✔ ○ Quadratic Probing

○ Linear Probing

○ Folding

13. Which of the following data structure is BEST suited to implement Priority Queue? 1 / 1 point

Your Answer: ✔ **Correct**

○ Doubly Linked List

✔ ◉ Heap

○ Queue using Linked List

○ Array

14. The inorder traversal of _____ will yeild a sorted listing of elements 1 / 1 point

Your Answer: ✔ **Correct**

○ Binary Trees

✔ ◉ Binary search trees

○ Heaps

○ AVL Trees

15. Which of the following is recursive preorder traversal function, if class node is defined as follows? 0 / 1 point

```
class Node{

int data;

Node left,right;

public Node(int key){

data = key;

left=right=null;

}
```

Your Answer: ✖ **Incorrect**

✔ ○ void preorder(Node node){

if(node == null)

return;

System.out.print(node.data+"--------->");

preorder(node.left);

preorder(node.right);

}

✖ ◉ void preorder(Node node){

if(node != null)

return;

System.out.print(node.data+"--------->");

preorder(node.left);

preorder(node.right);

}

○ void preorder(Node node){

if(node != null)

return;

preorder(node.left);

preorder(node.right);

System.out.print(node.data+"--------->");

}

○ void preorder(Node node){

if(node != null)

return;

preorder(node.left);

preorder(node.right);

System.out.print(node.data+"--------->");

}

16. An ADT is defined to be a mathematical model of a user-defined type along with the collection of all _____ operations on that model. 1 / 1 point

Your Answer: ✔ **Correct**

○ Cardinality

○ Assignment

✔ ◉ Primitive

○ Structure

17. You are very hungry and you decide to bake a batch by following your grandmother's chocolate chip cookie recipe. Which of the following computational thinking skills required to complete the above task? 1 / 1 point

Your Answer: ✔ **Correct**

○ Abstraction

✔ ◉ Algorithm Design

○ Pattern Recognition

○ Decomposition

18. What is the best-case time complexity of Bubble sort to sort an array of 'n' elements? 0 / 1 point

Your Answer: ✖ **Incorrect**

- ○ O(n^2)
- ○ O(n log n)
- ✖ ◉ O(1)
- ✔ ○ O(n)

19. What does the following return? 1 / 1 point

```
public int getval(Bnode T)
{ // T = root node
int value = 0;
if(T)
{ // LC = Left child and RC = Right child
if((T.LC == NULL) && (T.RC) == NULL))
value=1;
else
value=value+getval(T.LC) + getval(T.RC);
}
return value;
```

Your Answer: ✔ **Correct**

- ○ Number of internal nodes in the tree
- ○ height of the tree
- ○ Number of nodes without right sibling in the tree
- ✔ ◉ Number of leaf nodes in the tree

Consider the following type declaration for a doubly linked list node: 0 / 1 point

20. class DListNode{

int data;

DListNode prev;

DListNode next;

}

Which of the following statements (in correct order) will correctly insert a newNode, before the node reference by current?Assume that current is neither first nor last node in the linked list.

Your Answer: ✖ **Incorrect**

- ○ newNode.next=current;current.prev=newNode;newNode.prev=current;current.next = newNode;
- ○ current.prev=newNode;newNode.next = current;newNode.prev=current;
- ✖ ◉ newNode.prev=current;newNode.next=current;current.prev.next=newNode;current.next.prev=newNode;
- ✔ ○ newNode.prev=current.prev;newNode.next=current;current.prev.next=newNode;current.prev=newNode;

21. Which of the following algorithm can be used to detect negative cycle in a Graph? 0 / 1 point

Your Answer: ✖ **Incorrect**

- ○ Prim
- ✖ ◉ Krushal
- ○ Dijkstra
- ✔ ○ Bellman Ford

22. An algorithm that calls itself directly or indirectly is known as _____. 1 / 1 point

Your Answer: ✔ **Correct**

- ○ sub algorithm
- ✔ ◉ Recursive algorithm

- ○ Polish algorithm
- ○ Traversal algoritm

23. If already sorted array is passed to a sorting algorithm, which one will be slowest? 1 / 1 point

Your Answer: ✔ **Correct**

- ○ Insertion sort
- ✔ ◉ Selection sort
- ○ Heap sort
- ○ Merge sort

24. What is the time complexity of the following code? 0 / 1 point

```
int sum=0;
for(int i=0;i<n;i++){
sum=sum+10;
for(int j=0;j<n;j++){
sum=sum+j;
break;
}
}
```

Your Answer: ✖ **Incorrect**

- ✖ ◉ O(n^2)
- ✔ ○ O(n)
- ○ O(1)
- ○ O(log n)

1 / 1 point

25. How many stacks are required to implement Queue data structure?

Your Answer: ✔ **Correct**

- ○ 5
- ○ 1
- ✔ ◉ 2
- ○ 3

26. Using _____ in java, one can sort the arrays. 0 / 1 point

Your Answer: ✖ **Incorrect**

- ✖ ◉ System.sort()
- ○ Collection.sort()
- ✔ ○ Arrays.sort()
- ○ Array.sort()

27. _____ is a collision-resolution that searches the hash table for an unoccupied location beginning with the original location that the hash function specifies and continuing at the increments of 1^2,2^2,3^2, and so on 0 / 1 point

Your Answer: ✖ **Incorrect**

- ✖ ◉ Linear Probing
- ○ Double Hashing
- ✔ ○ Quadratic probing
- ○ Separate chaining

28. Create a Binary Search Tree for the given set of strings: 0 / 1 point

MAR,MAY,NOV,AUG,APR,JAN,DEC,JULY,FEB,JUN,OCT,SEPT

What are the leaf nodes generated in the tree?

Your Answer: ✖ **Incorrect**

✖ ◉ APR,FEB,DEC,JULY,SEPT

✔ ○ FEB,JUNE,SEPT

○ Can't create the tree

○ None of the above

29. Which data structure is required to convert the infix to prefix notation? 1 / 1 point

Your Answer: ✔ **Correct**

✔ ◉ Stack

○ Linked List

○ Binary Tree

○ Queue

30. Which algorithm builds up a solution by choosing the option that looks the best at every step. 0 / 1 point

Your Answer: ✖ **Incorrect**

○ Brute Force algorithm

✔ ○ Greedy algorithm

○ Recursive algorithm

✖ ◉ Backtracking algorithm

31. Which of the following is false about a binary search tree? 0 / 1 point

Your Answer: ✖ **Incorrect**

○ The left child is always lesser than its parent

○ The right child is always greater than its parent

✖ ◉ The left and right sub-trees should also be binary search trees

✔ ○ In order sequence gives decreasing order of elements

The data structure required for Breadth First Traversal on a graph is? 1 / 1 point

32. **Your Answer:** ✔ **Correct**

- ○ Stack
- ○ Array
- ✔ ◉ Queue
- ○ Tree

33. What is the time complexity of following code: 0 / 1 point

```
int a = 0, i = N;
while (i > 0)
{
a += i;
i /= 2;
}
```

Your Answer: ✖ **Incorrect**

- ✖ ◉ O(N)
- ○ O(Sqrt(N))
- ○ O(N / 2)
- ✔ ○ O(log N)

34. What is the time complexity of the following code? 1 / 1 point

```
int count(int n)
{
int c = 0;
for(int i = n; i > 0; i/= 2)
for(int j = 0; j < i; j++)
c += 1;
return c;
}
```

Your Answer: ✔ **Correct**

- ○ O(n^2)
- ○ O(n*Logn)
- ✔ ◉ O(n)
- ○ O(n*Logn*Logn)

35. Which of the following ways can be used to represent a graph? 1 / 1 point

Your Answer: ✔ **Correct**

- ○ Incidence Matrix
- ○ Adjacency List and Adjacency Matrix
- ○ No way to represent
- ✔ ◉ Adjacency List, Adjacency Matrix as well as Incidence Matrix

36. Kruskal's Algorithm for finding the Minimum Spanning Tree of a graph is a kind of a? 0 / 1 point

Your Answer: ✖ **Incorrect**

- ○ DP Problem
- ✔ ○ Greedy Algorithm
- ✖ ◉ Adhoc Problem
- ○ None of the above

37. Which of the following is not part of ADT description? 1 / 1 point

Your Answer: ✔ **Correct**

- ○ Data
- ○ Operations
- ○ Both of the above
- ✔ ◉ None of the above

38. In a circular queue, value of r will be 1 / 1 point

Your Answer: ✔ **Correct**

Your Answer: ✔ Correct

- ○ r=r+1
- ○ r=(r+1)%[Queue_Size-1]
- ✔ ◉ r=(r+1)%Queue_Size
- ○ r=(r-1)%Queue_Size

39. Any node in the path from root node to the node is called 1 / 1 point

Your Answer: ✔ **Correct**

- ○ Successor Node
- ✔ ◉ Ancestor Node
- ○ Internal Node
- ○ None of the above

40. The disadvantage in using circular linked list is 1 / 1 point

Your Answer: ✔ **Correct**

- ✔ ◉ It is possible to get into an infinite loop
- ○ Last node points to first node
- ○ Time consuming
- ○ Requires more memory space