QUIZ

Started on	Monday, 18 December 2023, 9:02 PM
State	Finished
Completed on	Monday, 18 December 2023, 9:35 PM
Time taken	33 mins 20 secs
Grade	**16.00** out of 40.00 (**40**%)

Question 1

Correct

Mark 1.00 out of 1.00

A data structure in which elements can be inserted or deleted at/from both ends but not in the middle is?

- a. Circular queue
- b. Dequeue ✔
- c. Queue
- d. Priority queue

Question 2

Correct

Mark 1.00 out of 1.00

A linear collection of data elements where the linear node is given by means of pointer is called?

- a. Linked list ✔
- b. Unordered list
- c. Node list
- d. Primitive list

Question 3

Incorrect

Mark 0.00 out of 1.00

A normal queue, if implemented using an array of size MAX_SIZE, gets full when?

a. Rear = front

b. Front = rear + 1

c. Front = (rear + 1) mod MAX_SIZE

d. Rear = MAX_SIZE – 1 ✖

Question 4

Correct

Mark 1.00 out of 1.00

Can a tree stored in an array using either one of inorder or post-order or pre-order traversals be again reformed?

a. No, in the case of sparse trees

b. Yes, by using both inorder and array elements

c. No, we need one more traversal to form a tree ✔

d. Yes, just traverse through the array and form the tree

Question 5

Correct

Mark 1.00 out of 1.00

Circular Queue is also known as _____

a. Rectangle Buffer

b. Curve Buffer

c. Square Buffer

d. Ring Buffer ✔

Question 6

Incorrect

Mark 0.00 out of 1.00

Disadvantages of linked list representation of binary trees over arrays?

- a. Extra memory for a pointer is needed with every element in the list ✖
- b. Randomly accessing is not possible
- c. Random access is not possible and extra memory with every element
- d. Difficulty in deletion

Question 7

Incorrect

Mark 0.00 out of 1.00

Elements in an array are accessed _____

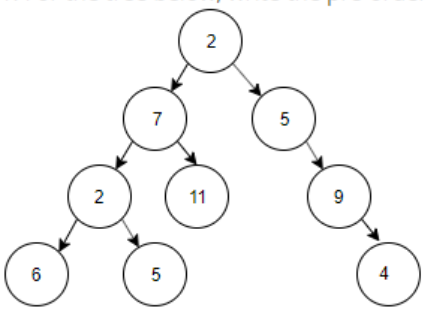
- a. exponentially
- b. logarithmically
- c. Sequentially ✖
- d. Randomly.

Question 8

Correct

Mark 1.00 out of 1.00

1. For the tree below, write the pre-order traversal.



- A. 2, 7, 5, 6, 11, 2, 5, 4, 9
- B. 2, 7, 5, 2, 6, 9, 5, 11, 4
- C. 2, 7, 2, 6, 5, 11, 5, 9, 4 ✔
- D. 2, 5, 11, 6, 7, 4, 9, 5, 2

Question 9

Incorrect

Mark 0.00 out of 1.00

How do you calculate the pointer difference in a memory-efficient double linked list?

a. pointer to the next node – pointer to the previous node

b. pointer to the previous node – pointer to the next node ✖

c. head xor tail

d. pointer to the previous node xor pointer to the next node

Question 10

Correct

Mark 1.00 out of 1.00

How many children does a binary tree have?

a. any number of children

b. 2

c. 0 or 1

d. 0 or 1 or 2 ✔

Question 11

Incorrect

Mark 0.00 out of 1.00

If the elements “A”, “B”, “C” and “D” are placed in a queue and are deleted one at a time, in what order will they be removed?

a. DCAB

b. ABCD

c. ABDC ✖

d. DCBA

Question 12

Incorrect

Mark 0.00 out of 1.00

In a stack, if a user tries to remove an element from an empty stack it is called _____

- a. Underflow ✖
- b. Overflow
- c. Empty collection
- d. Garbage Collection

Question 13

Correct

Mark 1.00 out of 1.00

In general, the index of the first element in an array is _____

- a. 1
- b. -1
- c. 2
- d. 0 ✔

Question 14

Incorrect

Mark 0.00 out of 1.00

In linked list, each node contains a minimum of two fields. One field is the data field to store the data, and the second field is?

- a. Node ✖
- b. Pointer to integer
- c. Pointer to node
- d. Pointer to character

Question 15

Correct

Mark 1.00 out of 1.00

In the worst case, the number of comparisons needed to search a singly linked list of length n for a given element is?

a. log2n−1

b. log2n

c. n/2

d. n ✔

Question 16

Correct

Mark 1.00 out of 1.00

Level order traversal of a tree is formed with the help of

a. Prim's algorithm

b. breadth-first search ✔

c. depth-first search

d. Dijkstra's algorithm

Question 17

Incorrect

Mark 0.00 out of 1.00

Linked lists are not suitable for the implementation of _____

a. Radix sort

b. Insertion sort

c. Binary search

d. Polynomial manipulation ✖

Question 18

Correct

Mark 1.00 out of 1.00

Longest palindromic subsequence is an example of _____

A. Greedy algorithm

B. **2D dynamic programming** ✔

C. 1D dynamic programming

D. Divide and conquer

Question 19

Incorrect

Mark 0.00 out of 1.00

```
int fun(int n)
{
   if (n == 4)
   return n;
   else return 2*fun(n+1);
}
```

```
Public static void main(String args[])
{
System.out.printf("%d ", fun(2));
return 0;
}
```

A. 4

B. 8 ✖

C. Runtime Error

D. 16

Question 20

Incorrect

Mark 0.00 out of 1.00

```
int rec(int num){
return (num) ? num%10 + rec(num/10):0;
}
main(){
printf("%d",rec(4567));
}
```

- A. 4
- B. 22
- C. 12 ✖
- D. 21

Question 21

Correct

Mark 1.00 out of 1.00

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

- a. Tree
- b. Stack
- c. Array
- d. Queue ✔

Question 22

Correct

Mark 1.00 out of 1.00

The optimal data structure used to solve Tower of Hanoi is _____

- a. Priority queue
- b. Heap
- c. Tree
- d. Stack ✔

Question 23

Incorrect

Mark 0.00 out of 1.00

The postfix form of the expression (A+ B)*(C*D- E)*F / G is?

a. AB+ CD*E – FG /**
b. AB + CD* E – *F *G /
c. AB + CD* E – F **G /
d. AB + CDE * – * F *G / ✖

Question 24

Incorrect

Mark 0.00 out of 1.00

The prefix form of A-B/ (C * D ^ E) is?

a. -/*^ACBDE
b. -A/B*C^DE
c. -ABCD*^DE
d. -A/BC*^DE ✖

Question 25

Incorrect

Mark 0.00 out of 1.00

The prefix form of an infix expression (p + q) – (r * t) is?

a. - +pqr * t
b. - +pq * rt
c. - + * pqrt
d. + pq - * rt ✖

Question 26

Correct

Mark 1.00 out of 1.00

To obtain a prefix expression, which of the tree traversals is used?

- a. In-order traversal
- b. Pre-order traversal ✔
- c. Level-order traversal
- d. Post-order traversal

Question 27

Incorrect

Mark 0.00 out of 1.00

What data structure would you mostly likely see in non recursive implementation of a recursive algorithm?

- a. Queue
- b. Stack
- c. Linked List ✖
- d. Tree

Question 28

Incorrect

Mark 0.00 out of 1.00

What is the functionality of the following piece of code?

```
public int function()
{
        Node temp = tail.getPrev();
        tail.setPrev(temp.getPrev());
        temp.getPrev().setNext(tail);
        size--;
        return temp.getItem();
}
```

- A. Return the last but one element from the list but do not remove it
- B. Return the last but one element at the tail of the list and remove it from the list
- C. Return the element at the tail of the list but do not remove it ✖
- D. Return the element at the tail of the list and remove it from the list

Question 29

Incorrect

Mark 0.00 out of 1.00

What is the time complexity of pre-order traversal in the iterative fashion?

a. O(nlogn)
b. O(1) ✖
c. O(logn)
d. O(n)

Question 30

Incorrect

Mark 0.00 out of 1.00

What is the value of the postfix expression 6 3 2 4 + – *?

a. 40 ✖
b. 1
c. 74
d. -18

Question 31

Incorrect

Mark 0.00 out of 1.00

What is/are the disadvantages of implementing a tree using normal arrays?

a. difficulty in knowing children nodes of a node ✖
b. difficulty in finding the parent of a node
c. difficult to implement
d. have to know the maximum number of nodes possible before creation of trees

Question 32

Incorrect

Mark 0.00 out of 1.00

```
public int power(int base, int exponent) {
    if (exponent == 0) {
        return 1;
    } else {
        return base * power(base, exponent - 1);
    }
}

public static void main(String[] args) {
    RecursionExample example = new RecursionExample();
    System.out.println(example.power(2, 3));
}
```

- A. 2
- B. 8
- C. 16 ✖
- D. 6

Question 33

Incorrect

Mark 0.00 out of 1.00

```
public boolean isBalanced(String exp)
{
        int len = exp.length();
        Stack<Integer> stk = new Stack<Integer>();
        for(int i = 0; i < len; i++)
        {
                char ch = exp.charAt(i);
                if (ch == '(')
                stk.push(i);
                else if (ch == ')')
                {
                        if(stk.peek() == null)
                        {
                                return false;
                        }
                        stk.pop();
                }
        }
        return true;
}
```

- A. O(n log n)
- B. O(1) ✖
- C. O(log n)
- D. O of n

Question 34

Incorrect

Mark 0.00 out of 1.00

What would be the asymptotic time complexity to add a node at the end of a singly linked list, if the pointer is initially pointing to the head of the list?

- a. O(1)
- b. θ(N)
- c. θ(1)
- d. O(N) ✖

Question 35

Incorrect

Mark 0.00 out of 1.00

What would be the asymptotic time complexity to find an element in the linked list?

- a. O(1) ✖
- b. O(n^2)
- c. O(n^4)
- d. O👎

Question 36

Correct

Mark 1.00 out of 1.00

Which of the following is not the application of stack?

- a. Compiler Syntax Analyzer
- b. Data Transfer between two asynchronous process ✔
- c. Tracking of local variables at run time
- d. A parentheses balancing program

Question 37

Incorrect

Mark 0.00 out of 1.00

Which of the following is the correct way to declare a multidimensional array in Java?

- a. int[] arr;
- b. int[]arr;
- c. int[[]] arr; ✖
- d. int arr[[]];

Question 38

Incorrect

Mark 0.00 out of 1.00

Which of the following sorting algorithms can be used to sort a random linked list with minimum time complexity?

a. Heap Sort
b. Merge Sort
c. Quick Sort ✖
d. Insertion Sort

Question 39

Correct

Mark 1.00 out of 1.00

Which of the following traversing algorithm is not used to traverse in a tree?

a. Randomized ✔
b. Post-order
c. Pre-order
d. Post-order

Question 40

Correct

Mark 1.00 out of 1.00

You are given pointers to the first and last nodes of a singly linked list, which of the following operations are dependent on the length of the linked list?

a. Add a new element at the end of the list
b. Insert a new element as the first element
c. Delete the first element
d. Delete the last element of the list ✔