

# G H Raisonni College of Engineering and Management, Pune. (An Autonomous Institution) SY (Computer Engineering) (Term-III) TAE1 Quiz Data Structure and Algorithms (UCSL201)

Total points 20/20 ?

Data Structures and Algorithms

TAE 1 [5 Marks] (\*20 Marks scale down to 5 marks)

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4. Stack in data structure is

1/1

- ☐ FIFO
- ☒ LIFO
- ☐ LILO
- ☐ None of these



8. . \_\_\_\_\_ is the maximum number of steps that can executed for the given parameters 1/1

- ☐ Average case
- ☒ Worst case
- ☐ Time complexity
- ☐ Best case

17. Five people P,Q,R,S and T are standing in a queue. R is standing between P 1/1 and T. P is just behind Q and Q is second in the queue. Who is second last in the queue?

- ☐ T
- ☐ S
- ☒ R
- ☐ P

6. A linear collection of data elements where the linear node is given by means of pointer is called? 1/1

- ☒ Linked list
- ☐ Node list
- ☐ Primitive list
- ☐ Unordered list



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Roll No. \*

SCOB77

1/1

Consider the following definition in c programming language

```
struct node {  
    int data;  
    struct node * next; }  
typedef struct node NODE;  
  
NODE *ptr;
```

Which of the following code is used to create new node?

- ☒ ptr = (NODE\*)malloc(sizeof(NODE));
- ☐ ptr = (NODE\*)malloc(NODE);
- ☐ ptr = (NODE\*)malloc(sizeof(NODE\*));
- ☐ ptr = (NODE)malloc(sizeof(NODE));



5. push() and pop() functions are found in

1/1

- ☐ queue
- ☐ linked list
- ☐ trees
- ☒ stack

15. In a circular linked list

1/1

- ☐ Components are all linked together in some sequential manner
- ☒ There is no beginning and no end.
- ☐ Components are arranged hierarchically.
- ☐ Forward and backward traversal within the list is permitted.

13. Which of this is not an application of linklist

1/1

- ☐ To implement file system
- ☐ for separate chaining in hash tables
- ☐ to implement non binary trees
- ☒ random access of elements



12. .... sorting algorithm is frequently used when  $n$  is small where  $n$  is total number of elements. 1/1

- ☐ Heap
- ☐ Bubble
- ☒ Insertion
- ☐ Quick

In the worst case, the number of comparisons needed to search a singly linked list of length  $n$  for a given element is 1/1

- ☐  $\log_2 n$
- ☐  $n/2$
- ☐  $\log_2 n - 1$
- ☒  $n$

7. Linked list is considered as an example of \_\_\_\_\_ type of memory allocation. 1/1

- ☐ Heap
- ☐ Static
- ☐ Compile
- ☒ Dynamic



3. In the stack, if users try to remove element from the empty stack then it is called as 1/1

- ☐ Empty collection
- ☒ Underflow of stack
- ☐ Garbage collection
- ☐ Overflow of stack

20. Match the following. a) Completeness i) How long does it take to find a solution, b) Time Complexity ii) How much memory need to perform the search., c) Space Complexity iii) Is the strategy guaranteed to find the solution when there in one. 1/1

- ☐ a-iii, b-ii, c-i
- ☐ a-i, b-ii, c-iii
- ☒ a-iii, b-i, c-ii
- ☐ a-i, b-iii, c-ii

2. How do you initialize an array in C?

1/1

- ☐ `int arr[3] = (1,2,3);`
- ☐ `int arr(3) = {1,2,3};`
- ☒ `int arr[3] = {1,2,3};`
- ☐ `int arr(3) = (1,2,3);`



19. Consider an implementation of unsorted singly linked list. Suppose it has 1/1 its representation with a head pointer only. Given the representation, which of the following operation can be implemented in  $O(1)$  time? i) Insertion at the front of the linked list ii) Insertion at the end of the linked list iii) Deletion of the front node of the linked list iv) Deletion of the last node of the linked list

- ☐ I and II
- ☒ I and III
- ☐ I, II and III
- ☐ I, II and IV

14. The worst-case occur in linear search algorithm when .....

1/1

- ☒ Item is the last element in the array or item is not there at all
- ☐ Item is not in the array at all
- ☐ Item is the last element in the array
- ☐ Item is somewhere in the middle of the array

10. Which of the following sorting algorithm is of divide and conquer type? 1/1

- ☐ Bubble sort
- ☒ Merge sort
- ☐ Selection sort
- ☐ Radix sort



9. An algorithm that calls itself directly or indirectly is known as

1/1

- ☐ Sub algorithm
- ☒ Recursion
- ☐ Polish notation
- ☐ Traversal algorithm

18. A linear list in which each node has pointers to point to the predecessor and successors nodes is called as

1/1

- ☐ Singly Linked List
- ☐ Circular Linked List
- ☒ Doubly Linked List
- ☐ Linear Linked List

16. Which of the following is not a limitation of binary search algorithm?

1/1

- ☐ must use a sorted array
- ☐ requirement of sorted array is expensive when a lot of insertion and deletions are needed
- ☒ binary search algorithm is not efficient when the data elements more than 1500.
- ☐ there must be a mechanism to access middle element directly

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