UNIT-V LINKED STACK AND LINKED QUEUE

* Required

1. PRN number *

2. Name: *

3. Div: *

Section

4. What is the definition of a Linear list? * (1 Point)

- A data object consisting of (e1, e2, e3...en) where n is a negative natural number
- A data object consisting of (e1, e2, e3...en) where n is an infinite natural number
- A data object consisting of (e1, e2, e3...en) where n is an even natural number
- A data object consisting of (e1, e2, e3...en) where n is a finite natural number

5. What operation determines whether the list is empty? * (1 Point)

- Create a Linear List
- Determine whether the list is empty
- Destroy a Linear List
- Determine the size of the List
- Option 2

6. void fun1(struct node* head) { if(head == NULL) return; fun1(head->next); printf("%d ", head->data); } * (1 Point)

- ◯ Prints all nodes of linked lists
- ◯ Prints all nodes of linked list in reverse order
- ◯ Prints alternate nodes of Linked List
- ◯ Prints alternate nodes in reverse order

7. Which of the following points is/are true about Linked List data structure when it is compared with array? * (1 Point)

- ◯ Arrays have better cache locality that can make them better in terms of performance.
- ◯ It is easy to insert and delete elements in Linked List
- ◯ Random access is not allowed in a typical implementation of Linked Lists
- ◯ The size of array has to be pre-decided, linked lists can change their size any time.
- ◯

8. A circularly linked list is used to represent a Queue. A single variable p is used to access the Queue. To which node should p point such that both the operations enQueue and deQueue can be performed in constant time? (GATE 2004) * (1 Point)

- ◯ rear node
- ◯ front node
- ◯ not possible with a single pointer
- ◯ node next to front

9. How many stacks are needed to implement a queue. Consider the situation where no other data structure like arrays, linked list is available to you. * (1 Point)

- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4

10. Which of the following operations on a queue data structure has a time complexity of O(1)?

A) Enqueue
B) Dequeue
C) Peek
D) Clear * (1 Point)

- ◯ A and B
- ◯ B only
- ◯ C only
- ◯ A and D

11. A priority queue can efficiently implemented using which of the following data structures? Assume that the number of insert and peek (operation to see the current highest priority item) and extraction (remove the highest priority item) operations are almost same. * (1 Point)

- ◯ Array
- ◯ Linked List
- ◯ Heap Data Structures like Binary Heap, Fibonacci Heap
- ◯ None of the above

12. Which of the following is true about linked list implementation of queue? * (1 Point)

- ◯ In push operation, if new nodes are inserted at the beginning of linked list, then in pop operation, nodes must be removed from end.
- ◯ In push operation, if new nodes are inserted at the end, then in pop operation, nodes must be removed from the beginning.
- ◯ Both of the above
- ◯ None of the above

13. A Priority-Queue is implemented as a Max-Heap. Initially, it has 5 elements. The level-order traversal of the heap is given below: 10, 8, 5, 3, 2 Two new elements ”1‘ and ”7‘ are inserted in the heap in that order. The level-order traversal of the heap after the insertion of the elements is: * (1 Point)

- ◯ 10, 8, 7, 5, 3, 2, 1
- ◯ 10, 8, 7, 2, 3, 1, 5
- ◯ 10, 8, 7, 1, 2, 3, 5
- ◯ 10, 8, 7, 3, 2, 1, 5
