1.
Is it possible to implement two stacks in an array?
Condition: None of the stack should indicate an overflow until every slot of an array is used.

A. Only 1 stack can be implemented for given condition

B. Stacks can not be implmented in an array

C. 2 stacks can be implemented for the given condition

D. 2 stacks can be impelemnted if the given condition is applied only for 1 stack

Answer: C

Hint: 2 stacks can be impelemented for the given condition start 1st stack from left (1st position of an array at index 0 and 2nd from right(last position of an array at n-1 index) move 1st stack towards right and 2nd towards left)

2.
What is an advantage of the heap over a stack?

A. The heap is more flexible than the stack.

B. Because memory space for the heap can be dynamically allocated and de-allocated as needed.

C. The memory of the heap can at times be slower when compared to that stack.

D. A and B

Answer: D

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3.
Which of the following is true about stack
i. Stack follows a LIFO pattern and array follows FIFO
ii. Stack follows particular order where as an array does not follow a particular order
iii. Array can be accessed by referring to the any specific indexed element within the array
iv. Stack can not be accessed by referring to the any specific position element within the stack

A. ii,iv
B. ii,iii,iv
C. ii
D. i

Answer: B

4.
Shop owner sells footballs. She has a large container to store footballs which is closed from below. Footballs are piled one on top of the other in the box. When new balls are supplied, shop owner puts the balls in the box from the top. When a customer buys a ball, shop owner delivers the ball at the top of the pile to the customer. Each ball has a code. shop owner wants to store the ball codes in a data structure to keep track of her inventory. Which data-structure should she use?

A. Queue
B. Stack
C. Array
D. Graph

Answer: B

Hint:The foot balls are put in the box from the top and are removed from the top. This follows the logic Last In First Out. This logic can be represented using a stack data structure.

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5.
An advantage of postfix form of an expression is that

A. There is no need to group sub-expressions in parentheses
B. There is no need to consider operator precedence.
C. A and B
D. Only B

Answer: C

6.
What is the value of the postfix expression 6 3 2 4+-*.

A. Something between -15 and -100
B. Something between -5 and -15
C. Something between 5 and -5
D. Something between 5 and 15
E. Something between 15 and 100

Answer: A

7.
Here is an infix expression: 4+3*(6*3-12). Suppose that we are using the usual stack algorithm to convert the expression from infix to postfix notation. What is the maximum number of symbols that will appear on the stack AT ONE TIME during the conversion of this expression?

A. 1
B. 2
C. 3
D. 4
E. 5

Answer: D

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8.
Transform the following infix expression into prefix form: A - ((((B + C) * D) - E) / F)

A. -A-+B*CD/EF
B. -A/-*+BCDEF
C. /-A-*+BCDEF
D. -A-/*+BCDEF

Answer: B

9.
Parenthesis is not required in postfix/prefix because

A. The order of an operators in expressions determines the actual order of operations in evaluating the expression.

B. The priority of the operators in expressions determines the actual order of operations in evaluating the expression.

C. A and B

D. None of the above

Answer: A

10.
Which process places data at the back of the Queue ?

A. dequeue
B. enqueue
C. traverse
D. poll

Answer: B

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11.
Linear Data Structure means

A. where an element is always deleted from top end or front end

B. having a linear relationship between its adjacent elements.
C. where elements are accessed randomly
D. which follow FIFO rule.

Answer: B

12.
Advantages of Circular Queue

A. Memory utilization is better than linear queue

B. A new item can be inserted in the location from where a previous item is deleted.

C. Infinite number of elements can be added continuously but without deletion.

D. A and B

Answer: D

13.
Searching for a given value in the queue time complexity is

A. O(n)
B. O(1)
C. O(log n)
D. None of the above

Answer: A

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14.
Consider the following operation along with Enqueue and Dequeue operations on queues, where k is a global parameter.

```
MultiDequeue(Q)
{
    m = k
    while (Q is not empty and m  > 0)
    {
        Dequeue(Q)
        m = m - 1
    }
}
```

What is the worst case time complexity of a sequence of n MultiDequeue() operations on an initially empty queue?

A. Big Oh(n)
B. Bin Oh(n + k)
C. Bin Oh(nk)
D. Bin Oh(n^2)

Answer: A

15.
Circular Queue is normally used in real life at

A. Traffic light sequence
B. print spooler of an operating system
C. bottle caping systems in cold drink factory
D. resolves bullet cylinder when place an object into two side opened container
E. All of the above

Answer: E

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16. Circular Queue is normally used in

A. keystroke buffers
B. network buffers
C. task queues in embedded systems
D. mouse event buffers
E. all of the above

Answer: E

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