**الأسئلة اللي هنا هي مجرد توقع لاللي هيجيلك بكرة في الامتحان وفيهم
أسئلة هتدخل تلاقيها ان شاء الله لانها كانت في امتحاني
السؤال اللي جمبه نجوم فهو سؤال مهم وبنسبة 98% هتلاقيه بكرة
اتمني لكم التوفيق**

Array

1. Which of these best describes an array?**

a) A data structure that shows a hierarchical behavior

b) Container of objects of similar types

c) Arrays are immutable once initialised

d) Array is not a data structure

2. How do you initialize an array in C?**
a) int arr[3] = (1,2,3);
b) int arr(3) = {1,2,3};
c) int arr[3] = {1,2,3};
d) int arr(3) = (1,2,3);

3. Which of the following concepts make extensive use of arrays?
a) Binary trees
b) Scheduling of processes
c) Caching
d) Spatial locality

4. What are the advantages of arrays?**

a) Objects of mixed data types can be stored

b) Elements in an array cannot be sorted

c) Index of first element of an array is 1

d) Easier to store elements of same data type

5. What are the disadvantages of arrays?**
a) Data structure like queue or stack cannot be implemented
**b) There are chances of wastage of memory space if elements inserted in an array
are lesser than the allocated size**
c) Index value of an array can be negative
d) Elements are sequentially accessed

6. Assuming int is of 4bytes, what is the size of int arr[15];?**
a) 15
b) 19
c) 11
d) 60

ضرب 15*4

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

a) 0

b) -1

c) 2

d) 1

8. Elements in an array are accessed _____
a) randomly
b) sequentially
c) exponentially
d) logarithmically

Stack Operations

1. Process of inserting an element in stack is called _____**
   a) Create
   b) Push
   c) Evaluation
   d) Pop
2. Process of removing an element from stack is called _____**
   a) Create
   b) Push
   c) Evaluation
   d) Pop
3. In a stack, if a user tries to remove an element from an empty stack it is called _____**
   a) Underflow
   b) Empty collection
   c) Overflow
   d) Garbage Collection
4. Pushing an element into stack already having five elements and stack size of 5, then stack becomes _____**
   a) Overflow
   b) Crash

      c) Underflow
      d) User flow

5. What is the value of the postfix expression 6 3 2 4 + – *?
      a) 1
      b) 40
      c) 74
      d) -18

6. The data structure required to check whether an expression contains a balanced parenthesis is?
a) Stack
b) Queue
c) Array
d) Tree

7.Entries in a stack are "ordered". What is the meaning of this statement?**
a) A collection of stacks is sortable
b) Stack entries may be compared with the '<' operation
c) The entries are stored in a linked list
d) There is a Sequential entry that is one by one

8.Which of the following is not the application of stack?**
a) A parentheses balancing program
b) Tracking of local variables at run time
c) Compiler Syntax Analyzer
d) Data Transfer between two asynchronous process

6. Consider the following operation performed on a stack of size 5.

Push(1);

Pop();

Push(2);

Push(3);

Pop();

Push(4);

Pop();

Pop();

Push(5);

After the completion of all operation, the number of elements present in stack is?
a) 1
b) 2
c) 3
d) 4

بيقولك بعد العمليات دي هيتبقي كام عنصر في ال stack
اطرح عدد المرات اللي عمل فيها بوش من اللي عامل فيها بوب
يعني 4-5 يطلع معاك 1
ممكن يجيي نفس السؤال ويقولك هيطبع اللي في ال stack فخد بالك

9. If the elements "A", "B", "C" and "D" are placed in a stack and are deleted one at a   6.
time, what is the order of removal?
a) ABCD
b) DCBA
c) DCAB
d) ABDC

Queue Operations

** 3. A queue follows _____
a) FIFO (First In First Out) principle
b) LIFO (Last In First Out) principle
c) Ordered array
d) Linear tree

**4. Circular Queue is also known as _____
a) Ring Buffer
b) Square Buffer
c) Rectangle Buffer
d) Curve Buffer

5. 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) ABCD

b) DCBA
c) DCAB
d) ABDC

7. A normal queue, if implemented using an array of size MAX_SIZE, gets full when?**
a) Rear = MAX_SIZE – 1
b) Front = (rear + 1)mod MAX_SIZE
c) Front = rear + 1
d) Rear = front

9. Which of the following is not the type of queue?
a) Ordinary queue
b) Single ended queue
c) Circular queue
d) Priority queue

Singly Linked List Operations

**1. A linear collection of data elements where the linear node is given by means of pointer is called?
a) Linked list
b) Node list
c) Primitive list
d) Unordered list

**3. In linked list each node contains a minimum of two fields. One field is data field to store the data second field is?
a) Pointer to character
b) Pointer to integer
c) Pointer to node
d) Node

1. What kind of linked list is best to answer questions like "What is the item at position n?"
a) Singly linked list

b) Doubly linked list

c) Circular linked list

d) Array implementation of linked list

3. Linked list is considered as an example of _____ type of memory allocation.

a) Dynamic

b) Static

c) Compile time

d) Heap

4. In Linked List implementation, a node carries information regarding _____

a) Data

b) Link

c) Data and Link

d) Node

5. Linked list data structure offers considerable saving in _____

a) Computational Time

b) Space Utilization

c) Space Utilization and Computational Time

d) Speed Utilization

6. Given pointer to a node X in a singly linked list. Only one pointer is given, pointer to head node is not given, can we delete the node X from given linked list?

a) Possible if X is not last node

b) Possible if size of linked list is even

c) Possible if size of linked list is odd

d) Possible if X is not first node

7. You are given pointers to first and last nodes of a singly linked list, which of the following operations are dependent on the length of the linked list?
a) Delete the first element
b) Insert a new element as a first element
c) Delete the last element of the list
d) Add a new element at the end of the list

1. Which of the following is not a disadvantage to the usage of array?

a) Fixed size

b) There are chances of wastage of memory space if elements inserted in an array are lesser than the allocated size

c) Insertion based on position

d) Accessing elements at specified positions

Stack using Array

2. What does the following function check for? (all necessary headers to be included and function is called from main)

```
#define MAX 10

typedef struct stack
{
    int top;
    int item[MAX];
}stack;

int function(stack *s)
{
    if(s->top == -1)
        return 1;
    else return 0;
}
```

a) full stack
b) invalid index
c) empty stack
d) infinite stack

3. What does 'stack underflow' refer to?
a) accessing item from an undefined stack
b) adding items to a full stack
c) removing items from an empty stack
d) index out of bounds exception

5. What is the time complexity of pop() operation when the stack is implemented using an array?
a) O(1)
b) O(n)
c) O(logn)
d) O(nlogn)

8. Consider these functions:
push() : push an element into the stack
pop() : pop the top-of-the-stack element
top() : returns the item stored in top-of-the-stack-node
What will be the output after performing these sequence of operations

```
push(20);
push(4);
top();
pop();
pop();
pop();
push(5);
top();
```

a) 20
b) 4
c) stack underflow
d) 5

9. Which of the following data structures can be used for parentheses matching?
a) n-ary tree
b) queue
c) priority queue
d) stack

10. Minimum number of queues to implement stack is _____
a) 3
b) 4
c) 1
d) 2

Queue using Array

1. Which of the following properties is associated with a queue?
a) First In Last Out
b) First In First Out
c) Last In First Out
d) Last In Last Out

2. In a circular queue, how do you increment the rear end of the queue?
a) rear++
b) (rear+1) % CAPACITY
c) (rear % CAPACITY)+1
d) rear–

3. What is the term for inserting into a full queue known as?
a) overflow
b) underflow
c) null pointer exception
d) program won't be compiled

4. What is the time complexity of enqueue operation?
a) O(logn)
b) O(nlogn)
c) O(n)
d) O(1)

6. What is the need for a circular queue?
a) effective usage of memory
b) easier computations
c) to delete elements based on priority
d) implement LIFO principle in queues

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Queue using Linked List

1. In linked list implementation of queue, if only front pointer is maintained, which of the following operation take worst case linear time?
a) Insertion
b) Deletion
c) To empty a queue
d) Both Insertion and To empty a queue

2. In linked list implementation of a queue, where does a new element be inserted?
a) At the head of link list
b) At the centre position in the link list
c) At the tail of the link list
d) At any position in the linked list

6. In linked list implementation of a queue, from where is the item deleted?
a) At the head of link list
b) At the centre position in the link list
c) At the tail of the link list
d) Node before the tail

7. In linked list implementation of a queue, the important condition for a queue to be empty is?
a) FRONT is null
b) REAR is null
c) LINK is empty
d) FRONT==REAR-1

Graph

1. Which of the following statements for a simple graph is correct?

**a) Every path is a trail**

b) Every trail is a path

c) Every trail is a path as well as every path is a trail

d) Path and trail have no relation

3. For the given graph(G), which of the following statements is true?
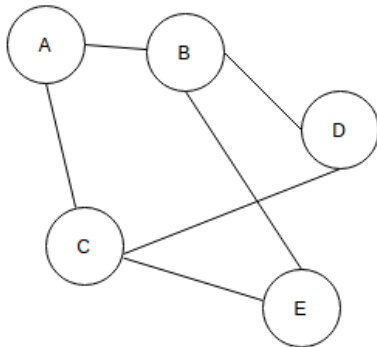
a) G is a complete graph

b) G is not a connected graph

c) The vertex connectivity of the graph is 2

d) The edge connectivity of the graph is 1

2. In the given graph identify the cut vertices.
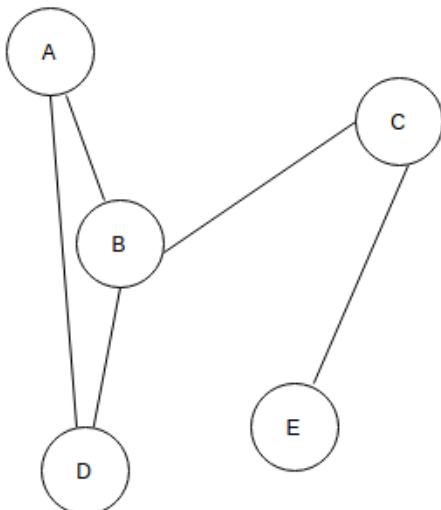
a) B and E

b) C and D

c) A and E

d) C and B

4. What is the number of edges present in a complete graph having n vertices?
a) (n*(n+1))/2
b) (n*(n-1))/2
c) n
d) Information given is insufficient

6. In a simple graph, the number of edges is equal to twice the sum of the degrees of the vertices.
a) True
b) False

7. A connected planar graph having 6 vertices, 7 edges contains _____ regions.
a) 15
b) 3
c) 1
d) 11

9. Which of the following properties does a simple graph not hold?
a) Must be connected
b) Must be unweighted
c) Must have no loops or multiple edges
d) Must have no multiple edges

11. Which of the following is true?
a) A graph may contain no edges and many vertices
b) A graph may contain many edges and no vertices
c) A graph may contain no edges and no vertices
d) A graph may contain no vertices and many edges

14. A graph with all vertices having equal degree is known as a _____
a) Multi Graph
b) Regular Graph
c) Simple Graph
d) Complete Graph

15. Which of the following ways can be used to represent a graph?
a) Adjacency List and Adjacency Matrix
b) Incidence Matrix
c) Adjacency List, Adjacency Matrix as well as Incidence Matrix
d) No way to represent

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حابب افكرك ان دي مجرد توقعات مع شوية أسئلة أساسي انها تيجي... السؤال وارد ينغير شكله ويجيلك في هيئة صح وغلط