

## Objective Questions for Online Practical Exams under CBCS Scheme

### Subject: Data Structure-I (CS-113)

- The number of interchanges required to sort 5, 1, 6, 2, 4 in ascending order using Bubble Sort  
(A) 6 (B) 5 (C) 7 (D) 8
- The postfix form of the expression  $(A + B) * (C * D - E) * F / G$  is
  - $AB + CD * E - FG /**$
  - $AB + CD * E - F **G /$
  - $AB + CD * E - *F *G /$
  - $AB + CDE * - * F *G /$
- A linear list of elements in which deletion can be done from one end (front) and insertion can take place only at the other end (rear) is known as a
  - Queue
  - Stack
  - Tree
  - Linked list
- In a circular linked list
  - 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.
- The data structure required for Breadth First Traversal on a graph is
  - Stack.
  - Queue.
  - Array.
  - Tree
- The postfix form of  $A * B + C / D$  is
  - $*AB / CD +$
  - $AB * CD / +$
  - $A * BC + / D$
  - $ABCD + / *$
- An adjacency matrix representation of a graph cannot contain information of :
  - nodes.
  - direction of edges.
  - edges
  - parallel edges
- $O(N)$  (linear time) is better than  $O(1)$  constant time.
  - True
  - False.
- Which data structure is needed to convert infix notation to postfix notation?
  - Linked list
  - Queue
  - Tree
  - Stack
- Stack is also called as
  - Last in first out
  - First in last out
  - Last in last out
  - First in first out
- Inserting an item into the stack when stack is not full is called ..... Operation and deletion of item from the stack, when stack is not empty is called .....operation.
  - push, pop
  - pop, push
  - insert, delete
  - delete, insert
- ..... Is a pile in which items are added at one end and removed from the other.
  - Stack
  - Queue
  - List
  - None of the above
- ..... is very useful in situation when data have to stored and then retrieved in reverse order.
  - Stack
  - Queue

C) List

D) Link list

14. Which of the following is non-linear data structure?

A) Stacks

B) List

C) Strings

D) Trees

15. Which of the following data structure is non linear type?

A) Strings

B) Lists

C) Stacks

D) Graph

16. To represent hierarchical relationship between elements, Which data structure is suitable?

A) Dequeue

B) Priority

C) Tree

D) Graph

17. In a circular queue the value of r will be ..

A)  $r=r+1$

B)  $r=(r+1)\% [QUEUE\_SIZE - 1]$

C)  $r=(r+1)\% QUEUE\_SIZE$

D)  $r=(r-1)\% QUEUE\_SIZE$

18. Which of the following statement is true?

i) Using singly linked lists and circular list, it is not possible to traverse the list backwards.

ii) To find the predecessor, it is required to traverse the list from the first node in case of singly linked list.

A) i-only

B) ii-only

C) Both i and ii

D) None of both

19. The advantage of ..... is that they solve the problem if sequential storage representation. But disadvantage in that is they are sequential lists.

A) Lists

B) Linked Lists

C) Trees

D) Queues

20. What will be the value of top, if there is a size of stack STACK\_SIZE is 5

A) 5

B) 6

C) 4

D) None

21 ..... is not the operation that can be performed on queue.

A) Insertion

B) Deletion

C) Retrieval

D) Traversal

22. There is an extra element at the head of the list called a .....

A) Antinel

- B) Sentinel
- C) List header
- D) List head

23. A graph is a collection of nodes, called ..... And line segments called arcs or ..... that connect pair of nodes.

- A) vertices, edges
- B) edges, vertices
- C) vertices, paths
- D) graph node, edges

24. A ..... is a graph that has weights of costs associated with its edges.

- A) Network
- B) Weighted graph
- C) Both A and B
- D) None A and B

25 In general, the binary search method needs no more than ..... comparisons.

- A)  $\lceil \log_2 n \rceil - 1$
- B)  $\lceil \log n \rceil + 1$
- C)  $\lceil \log_2 n \rceil$
- D)  $\lceil \log_2 n \rceil + 1$

26. Which of the following is not the type of queue?

- A) Ordinary queue
- B) Single ended queue
- C) Circular queue
- D) Priority queue

27. The property of binary tree is

- A) The first subset is called left subtree
- B) The second subtree is called right subtree
- C) The root cannot contain NULL
- D) The right subtree can be empty

28. State true or false.

- i) The degree of root node is always zero.
- ii) Nodes that are not root and not leaf are called as internal nodes.

- A) True, True
- B) True, False
- C) False, True
- D) False, False

29. Any node is the path from the root to the node is called

- A) Successor node
- B) Ancestor node
- C) Internal node
- D) None of the above

30. State true of false.

- i) A node is a parent if it has successor nodes.
- ii) A node is child node if out degree is one.

- A) True, True
- B) True, False
- C) False, True
- D) False, False

31. .... is not an operation performed on linear list  
a) Insertion b) Deletion c) Retrieval d) Traversal  
A) only a,b and c  
B) only a and b  
C) All of the above  
D) None of the above
32. Which is/are the application(s) of stack  
A) Function calls  
B) Large number Arithmetic  
C) Evaluation of arithmetic expressions  
D) All of the above
33. A ..... is an acyclic digraph, which has only one node with indegree 0, and other nodes have in-degree 1.  
A) Directed tree  
B) Undirected tree  
C) Dis-joint tree  
D) Direction oriented tree
34. .... Is a directed tree in which outdegree of each node is less than or equal to two.  
A) Unary tree  
B) Binary tree  
C) Trinary tree  
D) Both B and C
35. State true or false.  
i) An empty tree is also a binary tree.  
ii) In strictly binary tree, the out-degree of every node is either 0 or 2.  
A) True, False  
B) False, True  
C) True, True  
D) False, False
36. Which of the following data structures are indexed structures?  
A. Linear arrays  
B. Linked lists  
C. Queue  
D. Stack
37. Which of the following data structure store the homogeneous data elements?  
A. Arrays  
B. Records  
C. Pointers  
D. Lists
38. When new data are to be inserted into a data structure, but there is not available space; this situation is usually called ....  
A. Underflow  
B. overflow  
C. houseful  
D. saturated
39. A data structure where elements can be added or removed at either end but not in the middle is called ...  
A. linked lists

- B. stacks
  - C. queues
  - D. dequeue
40. Operations on a data structure may be .....
- A. creation
  - B. destruction
  - C. selection
  - D. all of the above
41. The way in which the data item or items are logically related defines .....
- A. storage structure
  - B. data structure
  - C. data relationship
  - D. data operation
42. Which of the following are the operations applicable on primitive data structures?
- A. create
  - B. destroy
  - C. update
  - D. all of the above
43. The use of pointers to refer elements of a data structure in which elements are logically adjacent is ....
- A. pointers
  - B. linked allocation
  - C. stack
  - D. queue
44. Arrays are best data structures
- A. for relatively permanent collections of data
  - B. for the size of the structure and the data in the structure are constantly changing
  - C. for both of above situation
  - D. for non of above situation
45. Which of the following statement is false?
- A. Arrays are dense lists and static data structure.
  - B. Data elements in linked list need not be stored in adjacent space in memory
  - C. Pointers store the next data element of a list.
  - D. Linked lists are collection of the nodes that contain information part and next pointer.
- Data Structures and Algorithms Multiple Choice Questions and Answers :-
46. Which of the following data structure is non-linear type?
- A) Strings
  - B) Lists
  - C) Stacks
  - D) Tree
47. Which of the following data structure is linear type?
- A) Array
  - B) Tree
  - C) Graphs
  - D) Hierarchy
48. The logical or mathematical model of a particular organization of data is called a .....
- A) Data structure
  - B) Data arrangement

- C) Data configuration
  - D) Data formation
49. The simplest type of data structure is .....
- A) Multidimensional array
  - B) Linear array
  - C) Two dimensional array
  - D) Three dimensional array
50. Linear arrays are also called .....
- A) Straight line array
  - B) One-dimensional array
  - C) Vertical array
  - D) Horizontal array

**Answer Keys**

1	B
2	A
3	A
4	B
5	B
6	B
7	D
8	B
9	D
10	A
11	A
12	B
13	A
14	D
15	D
16	C
17	C
18	C
19	B
20	C
21	D
22	B
23	A
24	C
25	D
26	B
27	D
28	C
29	B
30	B
31	D
32	D
33	A

34	B
35	C
36	A
37	B
38	B
39	D
40	D
41	B
42	D
43	B
44	A
45	C
46	D
47	A
48	A
49	B
50	B