

S.S.R. DEGREE COLLEGE,(AUTONOMOUS) NIZAMABAD (C.C:5029)
II SEMESTER (INTERNAL ASSESSMENT- I)

BSC- MPCS (DATA STRUCTURES)

QUESTION BANK

I. Multiple Choice Questions

1. Which of the following is NOT a linear data structure [D]
A) Array
B) Stack
C) Queue
D) Tree
2. When the user tries to delete the element from the empty stack then the condition is said to be a _____ [A]
a) Underflow b) Garbage collection c) overflow d) none of the above
3. If the size of the stack is 10 and we try to add the 11th element in the stack, then the condition is known as _____ [C]
a) Underflow b) Garbage collection c) Overflow d) ALL
4. In arrays, memory allocation is [C]
A) Dynamic
B) Non-contiguous
C) Contiguous
D) Random
5. Which of the following is the infix expression _____ [A]
a) $A+B*C$ b) $+A*BC$ c) $ABC+*$ d) none

6. Stack follows which principle?

[B]

- A) FIFO
- B) LIFO
- C) LILO
- D) FILO

7. what is the outcome of the prefix expression $+,-,*,3,2,/,8,4,1$ _____

[C]

- a) 12 b) 11 c) 5 d) 4

8. Infix to postfix conversion uses _____

[B]

- A) Queue
- B) Stack
- C) Array
- D) Tree

9. Which expression has operators after operands

[C]

- A) Infix
- B) Prefix
- C) Postfix
- D) Binary

10. Recursion requires which data structure internally

[B]

- A) Queue
- B) Stack
- C) Array
- D) Linked List

11. A function calling itself is known as

[C]

- A) Iteration
- B) Loop
- C) Recursion
- D) Branching

12. Circular queue overcomes which drawback of linear queue

[C]

- A) Overflow
- B) Underflow
- C) Memory wastage
- D) Time complexity

- 13.** Which of the following is a double-ended queue [B]
- A) Stack
 - B) Deque
 - C) Priority queue
 - D) Circular queue
- 14.** Linked list elements are stored in [D]
- A) Contiguous memory
 - B) Random memory
 - C) Sequential memory
 - D) Non-contiguous memory
- 15.** Which linked list allows traversal in both directions [C]
- A) Singly
 - B) Circular
 - C) Doubly
 - D) Linear
- 16.** The first node of a linked list is called [B]
- A) Tail
 - B) Head
 - C) Root
 - D) Leaf
- 17.** Garbage collection refers to [B]
- A) Deleting files
 - B) Freeing unused memory
 - C) Sorting data
 - D) Stack overflow
- 18.** A tree with at most two children is called [B]
- A) General tree
 - B) Binary tree
 - C) AVL tree
 - D) B-tree
- 19.** Which of the following is the correct way to increment the rear end in
A circular queue is _____ [B]

- a) $\text{rear} = \text{rear} + 1$ b) $(\text{rear} + 1) \% \text{max}$ c) $(\text{rear} \% \text{max}) + 1$ d) None

20. Inorder traversal of a BST gives

[C]

- A) Random order
- B) Descending order
- C) Ascending order
- D) Unsorted order

PART B: 40 Fill in the Blanks

1. Data structure is a way to store and organize data so that it can be used efficiently
2. Array is a static data structure.
3. Big-O notation represents worstcase complexity.
4. Arrays store elements of same data type.
5. Memory representation of arrays is stored continuously.
6. Stack is a Linear data structure.
7. Stack insertion operation is called Push
8. Stack can be implemented using Array and Linked list
9. Checking balanced parentheses uses stack.
10. Recursion must have a Base condition.
11. Recursive calls are stored in stack.
12. $+A*BC$ is prefix expression
13. Queue follows first in last out principle.
14. Queue insertion is called Enqueue operation.
15. Queue deletion is called Dequeue operation.
16. Circular queue connects last position to First.

17. Linked list nodes contain data and pointer .
18. The last node pointer contains NULL .
19. Doubly linked list has Two pointers.
20. Linked list memory allocation is Dynamic.

DESCRIPTIVE QUESTIONS

- 1) What is data structure ? Different types of data structure
- 2) What is stack ADT?
- 3) Representation of stack using array?
- 4) What is singly linked list and its operations?
- 5) Explain queue ADT?