

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)
I B.Tech II Semester (MR15) I Mid Question Bank

SUBJECT: DATA STRUCTURES
(Common for CSE branch)

MODULE-1

1. Data Structure is _____ []
- a) Organized data
 - b) Unorganized data
 - c) Heap
 - d) Integers
2. An algorithm is a _____ procedure to solve a task in finite amount of steps. []
- a) step by step procedure
 - b) no step
 - c) alternate step
 - d) all the above
3. An example of linear data structure is _____ []
- a) arrays
 - b) stacks
 - c) queues
 - d) all the above
4. An example of linear data structure is _____ []
- a) graphs
 - b) trees
 - c) linked list

d)both a & b.

5. A function that calls itself is called _____ []

a) recursion

b) array

c) structure

d) list

6. In recursive function calling and called function are _____ []

a) different

b) same

c) none

d)both a & b

7. _____ decides the case of the algorithm []

a) Functions

b) Trees

c) Asymptotic notations

d) None of the above

8. _____ notation represents worst case []

a) Big O

b) Omega

c) Theta

d) None of the above

9. _____ notation represents average case []

a) Big O

- b) Omega
- c) Theta
- d) None of the above

10. _____ notation represents best case []

- a) Big O
- b) Omega
- c) Theta
- d) None of the above

11. Mathematical representation of Big O is _____ []

- a) A
- b) O
- c) +
- d) &

12. Mathematical representation of Omega is _____ []

- a) O
- b) Ω
- c) +
- d) M

13. Mathematical representation of Theta is _____ []

- a) Ω
- b) \mathfrak{E}
- c) Θ
- d) O

14. The performance of analysis is based on _____ and _____ []

- a) Time and space
- b) Input and program
- c) Program and computer
- d) None of the above

15. It is difficult to solve _____ complexity []

- a) Space
- b) Time
- c) Stack
- d) Algorithm

16. _____ Complexity can be manageable []

- a) Time
- b) Space
- c) Algorithm
- d) Stack

17. In time complexity $T(n) =$ _____ []

- a) $t * c(n)$
- b) t
- c) $c(n)$
- d) n

18. In towers of Hanoi, the no: of moves is _____ []

- a) $2^n - 1$
- b) $n - 1$
- c) $2^n + 1$
- d) n

19. In which data structure elements are in sequence []

- a) Linear
- b) Non linear
- c) primitive
- d) None of the above

20. Stack follows _____ order []

- a) FIFO
- b) LIFO
- c) Non linear
- d) Non of the above

21. In stack insertion and deletion are done at _____ end []

- a) same
- b) Different
- c) Any end
- d) None of the above

22. Queue follows _____ order []

- a) LIFO
- b) FIFO
- c) None linear
- d) None of the above

23. In queue insertion and deletion are done at _____ end []

- a) same
- b) Different

- c) Any end
- d) None of the above

24. An algorithm can have _____ inputs []

- a) 0
- b) More than 2
- c) 0 or more
- d) More than 3

25. Data structure can be defined _____ []

- a) Mathematical & logical way
- b) Mathematical way
- c) Only logical way
- d) None of the above

26. An algorithm should be terminated []

- a) True b) False

27. An algorithm should not be efficient []

- a) True b) False

28. Initially an algorithm should be understood []

- a) True b) False

29. Minimum amount of the time taken for execution of an algorithm is _____ []

- a) Best case
- b) Average case
- c) Worst case

d) None of the above

30. Maximum amount of the time taken for execution of an algorithm is _____ []

a) Best case

b) Average case

c) Worst case

d) None of the above

31. Average amount of the time taken for execution of an algorithm is _____ []

a) Best case

b) Average case

c) Worst case

d) None of the above

32. To find GCD dividend= _____ []

a) divisor

b) Divisor*quotient+remainder

c) Remainder

d) Divisor*remainder

33. Is 8 the 6th element in Fibonacci series []

a) True b)False

34. Towers of Hanoi is very popular game []

a) True b)False

35. If a function calls itself only once is _____ []

a) Linear recursion

- b) Non- Linear recursion
- c) Binary recursion
- d) None of the above

36. If a function calls twice is _____ []

- a) Linear recursion
- b) Non- Linear recursion
- c) Binary recursion
- d) None of the above

37. Trees come under _____ .data structures []

- a) Linear data structures
- b) Non Linear data structures
- c) Primitive data structures
- d)both a&b

38. Data structures used in hierarchical model is _____ []

- a) Non linear data structures
- b) Linear data structures
- c) Primitive data structures
- d) None of the above

39. The total amount of time needed for the execution of program/algorithm is _____ []

- a) Space complexity
- b) Time complexity
- c) Best case
- d) None of the above

40. Temporary storage needed for the execution of program/algorithm is _____ []
- a) Space complexity
 - b) Time complexity
 - c) Best case
 - d) None of the above
41. Theta notation provides lower bound []
- a) True b)False
42. Omega notation provides lower bound []
- a) True b)False
43. Big O notation provides upper bound []
- a) True b)False
44. By using data structures problems can be solved easily []
- a) True b)False
45. In stack _____ represents as pointer []
- a) pointer
 - b) top
 - c) push
 - d) pop
46. If stack is empty value of Top is -1 []
- a) True b)False
47. Primitive data structures are _____ data types []

- a) User defined data types
- b) Fundamental data types
- c) Derived data types
- d) None of the above

48. Non primitive data structures are created by using _____ data structures []

- a) Primitive
- b) Non primitive
- c) Derived
- d) None of the above

49. _____ time complexity generates the average performance in worst case []

- a) Amortized
- b) Static
- c) Dynamic
- d) None of the above

50. Data structures are building blocks of a program []

- a) True b)False

ANSWER KEY

- 1.a
- 2.a
- 3.d
- 4.c
- 5.a
- 6.b
- 7.c
- 8.a
- 9.c
- 10.b

11.b
12.b
13.c
14.a
15.b
16.b
17.a
18.a
19.a
20.b
21.a
22.b
23.b
24.c
25.a
26.a
27.b
28.a
29.a
30.c
31.b
32.b
33.a
34.a
35.a
36.c
37.b
38.a
39.b
40.a
41.b
42.a
43.a
44.a
45.b
46.a
47.b
48.a
49.a
50.a

MODULE.2

1. Linked list is _____ data structure []
- a) primitive
 - b) linear
 - c) non linear
 - d) None
2. _____ function is used to deallocate memory []
- a) malloc
 - b) calloc
 - c) free
 - d) realloc
3. A linked list is _____ []
- a) random access structure
 - b) linear access structure
 - c) both
 - d) none
4. Linked list is used to implement data structures like _____ []
- a) stack
 - b) queue
 - c) both
 - d) none
5. Number of NULL pointers present in a singly linked list is _____ []
- a) 0
 - b) 1
 - c) 2
 - d) -1

6. Which type of linked list does not store NULL in next field []

- a) singly linked list
- b) circular linked list
- c) doubly linked list
- d) none

7. Which type of linked list contain pointer to next as well as previous in the sequence []

- a) singly linked list
- b) circular linked list
- c) doubly linked list
- d) none

8. Number of NULL pointers present in a circular linked list is _____ []

- a) 0
- b) 1
- c) 2
- d) -1

9. An array is _____ []

- a) random access structure
- b) linear access structure
- c) both
- d) none

10. In linked list memory is allocated _____ []

- a) statically
- b) dynamically
- c) both
- d) none

11. In a _____ traversal in both directions(forward and backward) are possible []

- a) singly linked list
- b) circular linked list
- c) doubly linked list
- d) none

12. NULL represents _____ []

- a) 0
- b) 1
- c) 2
- d) -1

13. In a _____ list last node connected back to the first node []

- a) singly linked list
- b) circular linked list
- c) doubly linked list
- d) none

14. Number of NULL pointers present in a doubly linked list is _____ []

- a) 0
- b) 1
- c) 2
- d) -1

15. The list of available free space is known as _____ []

- a) pool
- b) free
- c) free pool
- d) memory pool

16. Linked lists are best suited _____ []

- a) for relatively permanent collections of data.
- b) for the size of the structure and the data in the structure are constantly changing.
- c) data structure
- d) for none of above situation

17. The operation of processing each element in the list is known as _____ []

- a) sorting
- b) merging
- c) inserting
- d) traversal

18. The situation when in a linked list $START=NULL$ is _____ []

- a) Underflow
- b) Overflow
- c) both
- d) none

19. Each node in singly linked list has _____ Fields. []

- a) 2

- b) 3
- c) 1
- d) 4

20. Which is the pointer associated with the free pool? []

- a) first
- b) avail
- c) top
- d) rear

21. In linked lists there are no NULL links in []

- a) single linked list
- b) linear doubly linked list
- c) circular linked list
- d) linked list

22. Each node in a linked list must contain at least _____ []

- a) Three fields
- b) Two fields
- c) Four fields
- d) Five fields

23. In a linked list the _____ field contains the address of next element in the list. []

- a) element field
- b) Next field

c) Start field

d) Info field

24. _____ refers to a linear collection of data items. []

a) List

b) Tree

c) Graph

d) Edge

25. Indexing the _____ element in the list is not possible in linked lists .[]

a) middle

b) first

c) last

d) all

26. A linear list in which the pointer points only to the successive node is _____ []

a) singly linked list

b) circular linked list

c) doubly linked list

d) none

27. A Linked list is a linear collection of data elements []

a) true

b) false

28. A Linked List can grow and shrink during runtime []

- a) top
- b) front
- c) start
- d) avail

38. Inserting a node at the beginning of the doubly linked list needs to modify___ [] pointers.

- a) 2
- b) 1
- c) 3
- d) 0

39. Inserting a node in the middle of the singly linked list needs to modify _____ pointers. []

- a) 1
- b) 2
- c) 3
- d) 0

40. Inserting a node at the end of the circular linked list needs to modify _____ pointers. []

- a) 1
- b) 2
- c) 0
- d) 4

41. Deleting a node from the beginning of the singly linked list needs to modify _____ pointers. []

- a) 1
- b) 2
- c) 3
- d) 0

42. Deleting a node from the middle of the doubly linked list needs to modify

_____ pointers.

[]

- a) 1
- b) 2
- c) -1
- d) 0

43. Each element in a linked list is known as a _____

[]

- a) Data
- b) Node
- c) Info
- d) element

44. First node in the linked list is called the _____

[]

- a) start
- b) stack
- c) avail
- d) next

45. Data elements in a linked list are known as _____

[]

- a) Data
- b) Node
- c) Info
- d) element

46. In a circular linked list, the last node contains a pointer to the _____ node of the list []

- a) Previous
- b) First
- c) Middle
- d) None

47. A singly linked list is also called as _____ []

- a) linked list
- b) one way chain
- c) two way chain
- d) left link

48. The disadvantage in using a circular linked list is _____ []

- a) it is possible to get into infinite loop
- b) last node points to first node.
- c) time consuming
- d) requires more memory space.

49. In a two-way lists each node is divided into _____ parts []

- a) 1
- b) 2

c) 3

d) 4

50. In a linked list, insertion can be done as _____ []

a) beginning

b) end

c) middle

d) all of the above

ANSWER KEY:

1. b

2. c

3. b

4. c

5. b

6. b

7. c

8. a

9. a

10. b

11. c

12. d

13. b

14. c

15. c

16. b

17. a

18. a

19. a

20. b

21. c

22. b

23. b

24. a

25. a

- 26. a
- 27. a
- 28. a
- 29. a
- 30. b
- 31. b
- 32. b
- 33. a
- 34. a
- 35. a
- 36. a
- 37. d
- 38. a
- 39. b
- 40. b
- 41. a
- 42. b
- 43. b
- 44. a
- 45. b
- 46. b
- 47. b
- 48. a
- 49. b
- 50. d

MODULE 3

1. _____ form of access is used to add and remove nodes from a stack []

- a) LIFO, Last In First Out
- b) FIFO, First In First Out
- c) Both a and b
- d) None of these

2. In linked representation of stack the null pointer of the last node in the list signals _____ []

- a) Beginning of the stack
- b).Bottom of the stack
- c) Middle of the stack
- d)In between some value

3. What happens when you push a new node onto a stack? []

- a)The new node is placed at the front of the linked list
- b) The new node is placed at the back of the linked list
- c)The new node is placed at the middle of the linked list
- d) No Changes happens

4. Which of the following name does not relate to stacks? []

- a)FIFO lists
- b) LIFO lists
- c) sequential list
- d)Push down lists

5. The retrieval of items in a stack is _____ operation. []

- a) push
- b) pop
- c) retrieval
- d) access

6. The term push and pop is related to []

- a) Array
- b) Lists
- c) Stacks
- d) Trees

7 Which is the pointer associated with the stack? []

- a) first
- b) front
- c) top
- d) rear

8. The elements are removal from a stack in _____ order. []

- a) Reverse
- b) Hierarchical
- c) Alternative
- d) Sequential

9 The insertion operation in the stack is called _____ []

- a) insert
- b) push
- c) pop
- d) top

10 Stack follows the strategy of _____ []

- a) LIFO
- b) FIFO
- c) LRU
- d) RANDOM

11 . _____ is the term used to delete an element from the stack. []

- a) Push
- b) Pull
- c) Pop
- d) Pump

12 A pointer variable which contains the location at the top element of the stack is called _____ []

- a) Top
- b) Last
- c) Final
- d) End

13. Which of the following is an application of stack? []

- a) finding factorial
- b) recursion
- c) infix to postfix
- d) all of the above

14. _____ is the term used to insert an element into stack. []

- a) Push
- b) Pull
- c) Pop
- d) Pump

15. The corresponding postfix expression for the following infix expression

is $(A+B)*(C*D-E)*F/G$ []

- a) $A B + C D E * - F G / * *$
- b) $A B + C D * E - F G * / *$
- c) $A B + C D * E - F G / * *$
- d) None of these

16. Which condition makes stack overflow? []

- a) $max = -1$
- b) $top = max - 1$
- c) $top = -1$
- d) $top = top + 1$

17. Stack underflow condition occurs when _____ []

- a)stack is full
- b)stack empty
- c)both
- d)none.

18.Which function places an element on the stack? []

- a) Push
- b) Pull
- c) Pop
- d) Pump

19.Variable TOP is associated with stack []

- a)True b)False

20.Stack is a non- linear data structure []

- a)True b)False

21.Stack cannot be implemented using linked list []

- a)True b)False

22.Stack can be implemented using array []

- a)True b)False

23.The size of the stack is not restricted in array implementation []

- a)True b)False

24.Which data structure is used for postfix evaluation []

- a)stack
- b)queue
- c)tree
- d)graph

25.Stack data structure can be implemented using _____ []

a)array

b)linked list

c)both a)& b)

d)None

Answers:

1.a 10.a 19.a

2.b 11.c 20.b

3.a 12.a 21.b

4.a 13.d 22.a

5.b 14.a 23.b

6.c 15.c 24.a

7.c 16.b 25.c

8.a 17.b

9.b 18.a