

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

SUBJECT: DATA STRUCTURES THROUGH C
(Common for ECE and EEE branches)

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) a & b.

5. Something 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) 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) ϵ

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 f5 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) 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

MODULE-1 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

MULTIPLE CHOICE QUESTIONS

1. fopen() function is used to _____ []

- a) creates a new file for use
- b) closing an existing file
- c) deleting the existing file
- d) none of the above

2. Which of the following is true for getc() function? []

- a) read a string from the file
- b) read a character from the file
- c) read a character from the console
- d) read a string from the console

3. _____ is the task performed for rewind function []

- a) set the file pointer to the end of the file
- b) set the file pointer to the beginning of the file
- c) set the file pointer to any desired position in the file
- d) erase all the file contents and place the file pointer at the beginning

4. _____ the functionality of “a+” file access. []

- a) open the file for appending data to it
- b) open the file in read-write mode for appending data to it
- c) append the contents of one file in to another
- d) none of the above

5. “putc()” function is used for the _____. []

- a) put one character at a time in to the file
- b) put one string at a time in to the file
- c) put one character at a time in to the console
- d) put one string at a time in to the console

6. _____ function is used to read an integer value from a file []

- a) getw()
- b) getc()
- c) gets()
- d) geti()

7. _____ is file-handling function used as analogous to the standard I/O function printf ()in file operations. []

- a) fprintf()
- b) fprintf()
- c) fprints()
- d) fprintfline()

8. End of file is represented by _____. []

- a) eof
- b) EOF
- c) „/0“
- d) any garbage value

9. _____ is a commonly used function for error-handling. []

- a) ferr()

- b) ferror()
- c) feof()
- d) None of the above

10. _____ is not a file access mode []

- a) r+
- b) w+
- c) a
- d)a+

11. fclose() function used to _____. []

- a) creates a new file for use
- b) opening an existing file
- c) closes a file which has been opened for use
- d) none of the above

12. ftell() function declares that _____. []

- a) the current position in the file
- b) opening an existing file
- c) closes a file which has been opened for use
- d) none of the above

13. fscanf() function is used to perform _____ task. []

- a) the current position in the file
- b) opening an existing file
- c) reads a set of data values from a file
- d) none of the above

14. The rewind() function performs _____. []

- a) the current position in the file
- b) the position to the beginning of the file
- c) reads a set of data values from a file
- d) none of the above

20

15. “r” mode in file operations is used to _____. []

- a) open the file for reading only
- b) the position to the beginning of the file
- c) reads a set of data values from a file
- d) none of the above

16. “r+” mode file operation is used to _____. []

- a) the existing file is opened to the beginning for both reading and writing
- b) the position to the beginning of the file
- c) reads a set of data values from a file
- d) none of the above

17. _____ is the type and value of EOF. []

- a) int,0
- b) int,1
- c) int,-1
- d) char,1

18. _____ is file access mode that is used for both reading and writing. []

- a) w+
- b) w
- c) a+
- d) None of the above

19. _____ is purpose of getw() operation. []

- a) reading and writing an integer to a file.
- b) the position to the beginning of the file
- c) reads a set of data values from a file
- d) none of the above

20. _____ is the operation of fseek(). []

- a) reading and writing an integer to a file.
- b) to move to any desired location in a file
- c) reads a set of data values from a file
- d) none of the above

21. EOF is used for _____ . []

- a) end of file
- b) start of file
- c) both a and b
- d) none

22. getch() function is used to _____. []

- a) read a character from keyboard
- b) read a character from a file
- c) both a and b

d) none

23. Open the file for writing only using _____ mode. []

a) r

b) w

c) a

d) none

24. To open a file _____ function is used. []

a) fclose()

b) fopen()

c) both a and b

d) none

25. To close a file the following _____ function will be used. []

a) fclose()

b) fopen()

c) both a and b

d) none

26. For binary search the average case time complexity is _____. []

a) $O(n)$

b) $O(n^2)$

c) $O(n \log n)$

d) $O(\log n)$

27. The time complexity of binary search in best case is _____. []

- a) $O(1)$
- b) $O(n^2)$
- c) $O(n \log n)$
- d) $O(\log n)$

28. The binary search algorithm worst case time complexity is _____. []

- a) $O(n)$
- b) $O(n^2)$
- c) $O(n \log n)$
- d) $O(\log n)$

29. _____ is time complexity of linear search in average case. []

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

30. The linear search best case time complexity is _____. []

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

31. _____ is the time complexity of linear search in worst case. []

- a) $O(n+1)/2$
- b) $O(n^2)$
- c) $O(n)$

d) 1

32. Binary search is effective only when the elements are in _____. []

- a) ascending order
- b) descending order
- c) a and b
- d) jumbled order

33. Linear search is also called as _____. []

- a) binary search
- b) sequential search
- c) both a and b
- d) none

34. Bubble sort's space complexity is _____. []

- a) $O(1)$
- b) $O(n)$
- c) $2n/n+1$
- d) $(n(n+2))/n$

35. The time complexity of bubble sort in best case is _____. []

- a) $O(n)$
- b) $O(n^2)$
- c) $O(n \log n)$
- d) $O(\log n)$

36. Selection sort's best case time complexity is _____. []

- a) $O(n)$
- b) $O(n^2)$
- c) $O(n \log n)$
- d) $O(\log n)$

37. _____ is the insertion sort algorithm's best case time complexity is []

- a) $O(n)$
- b) $O(n^2)$
- c) $O(n \log n)$
- d) $O(\log n)$

38. _____ is the time complexity of bubble sort in worst case []

- a) $O(n)$
- b) $O(n^2)$
- c) $O(n \log n)$
- d) $O(\log n)$

39. The selection sort's worst case time complexity is _____. []

- a) $O(n)$
- b) $O(n^2)$
- c) $O(n \log n)$
- d) $O(\log n)$

40. The insertion sort's worst case time complexity is _____. []

- a) $O(n)$
- b) $O(n^2)$
- c) $O(n \log n)$

d) $O(\log n)$

41. _____ is the space complexity of selection sort. []

a) $O(1)$

b) $O(n)$

c) $O(n \log n)$

d) $O(\log n)$

42. _____ is the best searching technique among the following []

a) binary search

b) linear search

c) both a and b

d) none

43. The another name of selection sort is _____. []

a) Merge sort

b) push down sort

c) quick sort

d) insertion sort

44. Which of the following is of priority queue sorting type []

a) Bubble sort

b) Insertion sort

c) Merge sort

d) Selection sort

45. Binary search algorithm cannot be applied to _____. []

- a) sorted linked list
- b) sorted binary trees
- c) sorted linear array
- d) pointer array

46. The worst case occur in linear search algorithm when _____ . []

- a) Item is somewhere in the middle of the array
- b) Item is not in the array at all
- c) Item is the last element in the array
- d) Item is the last element in the array or item is not there at all

47. Example of insertion sort occurs when _____ . []

- a) playing cards
- b) playing caroms
- c) playing tennis
- d) playing cricket

48. Searching is a method of _____ . []

- a) finding an element
- b) arranging elements in order
- c) both a and b
- d) none

49. Sorting is process that _____ . []

- a) finding an element
- b) arranging elements in order
- c) both a and b

d) none

50. Efficiency is represented by the _____ notation .

[]

a) big O

b) small o

c) both a and b

d) none

MODULE-2 KEY.

1. a

2. b

3. b

4. a

5. a

6. a

7. b

8. b

9. b

10. c

11. c

12. a

13. c

14. b

15. a

16. a

17. c

18. a

19.a

20. b

21.a

22.b

23.b

24.b

25.a

26.d

27.a

28.d

29.a

30.d

31.c

32.a

33.b

34. a

35.a

36.b

37.a

38.b

39.b

40. b

41.a

42.a

43.b

44.d

45.d

46. d

47.a

48.a

49 .b

50.a

MODULE.3

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

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