MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)
DEPARTMENT OF CSE
SUBJECT: DATA STRUCTURES THROUGH C

Year: I B.Tech(ECE&EEE)-II semester(MR15)
MID-II EXAM

MODULE: III

1. Which of the following is not a type of Linked List ? [ ]

a)Doubly Linked List
b)Singly Linked List
c)Circular Linked List
d)Hybrid Linked List

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

[ ]

a)Dynamic
b)None of these
c)Compile Time
d)Static

3. In a circular linked list _____. [ ]

a) Components are all linked together in some sequential manner.
b) There is no beginning and no end.
c) Components are arranged hierarchically.
d) Forward and backward traversal within the list is permitted.

4. In doubly linked lists, traversal can be performed? [ ]

a) Only in forward direction
b) Only in reverse direction
c) In both directions
d) None

5. A variant of the linked list in which none of the node contains NULL pointer is? [ ]

a) Singly linked list
b) Doubly linked list

c) Circular linked list
d) None

6. In circular linked list, insertion of node requires modification of? [ ]

a) One pointer
b) Two pointer
c) Three pointer
d) None

7. In a doubly linked list traversing comes to a halt at: _____. [ ]

a) null
b) front
c) rear
d) rear-1

8. Sparse matrix have _____. [ ]

a) many zero entries
b) many non-zero entries
c) higher dimension
d) none of above

9. Which of the following is a Two-way list? [ ]

a) Singly linked list
b) Doubly linked list
c) Circular linked list
d) None

10. Two dimensional arrays are also called_____. [ ]

a) Tables arrays
b) Matrix arrays
c) Both of above
d) None of above

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

a) Sorted linked list
b) Sorted binary trees
c) Sorted linear array
d) Pointer array

12. A data structure where elements can be added or removed at either end but not in the middle. [ ]

a) Linked lists
b) Stacks
c) Queues
d) Deque

13. 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) For both of above situation
d) For none of above situation

14. 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 none of above situation

15. The situation when in a linked list START=NULL is_____. [ ]

a) Underflow
b) Overflow
c) Houseful
d) Saturated

16. Applications of Linked List are _____. [ ]

a) Simulation , event driven systems
b) Postfix and prefix manipulations
c) Dictionary systems, polynomial manipulations
d) Fixed block storage allocation, garbage collection

17. Which of the following operations is performed more efficiently by doubly linked list than by singly linked list. [ ]

a) Deleting a node whose location is given.
b) Searching of an unsorted list for a given item.
c) Inserting a new node after node whose location is given.
d) Traversing the list to process each node.

18. Linked lists are not suitable data structures for which one of the following problems. [ ]

a) Insertion sort
b) Binary search
c) radix sort
d) polynomial manipulation

19. A one-way list is called _____. [ ]

a) Circular linked list
b) Array
c) Queue
d) Single linked list

20. Insertion in a linked list can be done from_____. [ ]

a) Beginning
b) End
c) Middle
d) All of the above

21. The traversal directions possible in a double-linked list are_____. [ ]

a) Forward
b) Backward
c) Forward and backward
d) Right

22. A linear linked list in which the next field of the last node points back to the first node is termed as_____. [ ]

a) Single linked list
b) Double linked list
c) Circular linked list
d) Reversed linked list

23. A stack could be implemented using_____. [ ]

a) Single and double
b) Single and circular
c) Array and linked list
d) Any of the above

24. A linked list is a linear collection of homogeneous elements called_____. [ ]

a) Structures
b) Nodes
c) Data
d) None of the above

25. The situation in which the user tries to delete a node from an empty linked list is called___. [ ]

a) Empty
b) Free
c) Overflow
d) Underflow

Module-III Key

1. a
2. a
3. b
4. c
5. c
6. b
7. a
8. a
9. c
10. c
11. a
12. d
13. b
14. a
15. a
16. d
17. a
18. b

19. d
20. a
21. c
22. b
23. b
24. d
25. d

MODULE IV:

1. Stack is _____. [ ]

a)LIFO
b)FIFO
c)FILO
d)LILO

2. Which function places an element on the stack [ ]

a)pop( )
b)push( )
c)peek( )
d) is empty( )

3. Push( ) function represents [ ]

a)Insertion
b)Pop
c)Peek
d)Is empty

4. Pop( ) function represents [ ]

a)Insertion
b)Deletion
c)Peek( )
d)Is empty

5. Recursion means [ ]

a)Calling itself
b)Deletion
c)Insertion
d)None

6. How many stack notations are there [ ]

a)1

b)2
c)3
d)None

7. Infix expression means [ ]

a)operator in between operands
b)only operators
c)only operands
d)none

8. Which is correct for infix expression [ ]

a)ab+
b)+ab
c)a+b
d)none

9. Prefix expression means [ ]

a)operators before operands
b)only operators
c)only operands
d)none

10. Which is correct for prefix expression [ ]

a)ab+
b)+ab
c)a+b
d)none

11. Which is correct for post fix expression [ ]

a) ab+

b) +ab

c) a+b

d) none

12.Post fix expression means [ ]

a)operator after operands
b)only operators
c)only operands
d)none

13. Towers of Hanoi is example of [ ]

a)Recursion
b)Stack
c)Queue
d)none

14. In Towers of Hanoi the number of steps known by [ ]

a)2^n-1
b)2^n
c)1
d)none

15. In stack top=-1 represents_____ . [ ]

a)stack empty
b)full
c)not full
d)none

16. In stack top=max-1 represents [ ]

a)stack is full
b)empty
c)not full
d)none

17. In stack when top=max-1,then a push is made ___is printed. [ ]

a)under flow
b)over flow
c)empty
d)none

18. In stack when top=-1,then a pop( )operation is made___is printed. [ ]

a)under flow
b)over flow
c)full
d)none

19. Queue is ___ [ ]

a)FIFO
b)LIFO
c)LILO
d)none

20. Example of Queue is___ [ ]

a)cars lined at toll gate
b)Recursion
c)time complexity
d)none

21. Queue has how many operation [ ]

a)1
b)2
c)3
d)none

22. In queue insertion takes place___end [ ]

a)rear()
b)front()
c)push( )
d)pop( )

23. When rear=front=-1,it represents the queue is [ ]

a)empty
b)full
c)overflow
d)none

24. When front=0 and rear=max-1___message is printed [ ]

a)queue is full
b)empty
c)underflow
d)none

25. When front=rear=-1,then if deletion takes place___message is printed. [ ]

a)overflow
b)underflow
c)full
d)none

26. When front=0 and rear=max-1,if an element is to be inserted then__ . [ ]

a)overflow
b)underflow
c)empty
d)none

27. When an element is to be inserted into the queue, when queue is empty then what is to be initialized? [ ]

a)front=rear=0
b)front=rear=-1
c)front=-1
d)rear=-1

28. In queue deletion takes place at ___. [ ]

a)rear
b)front
c)push
d)pop

29. Other name of Dequeue is_____. [ ]

a)head-tail linked list
b)head list
c)tail list
d)none

30. A line in a grocery store represents. [ ]

a)stack
b)queue
c)linked list
d)array

31. In a priority queue, two elements with the same priority are processed on ___ basis. [ ]

a)FCFS
b)FIFO
c)LIFO
d)none

32. 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) for both of above situation
d) for none of above situation

33.____ very useful in situation when data have to stored and then retrieved in reverse order. [ ]

a) Stack
b) Queue
c) List
c) Link list

34. Inserting an item into the stack when stack is not full is called _____ Operation & deletion of item form the stack, when stack is not empty is called _____operation. [ ]

a) push, pop
b) pop, push
c) insert, delete
d) delete, insert

35. To represent hierarchical relationship between elements, which data structure is suitable? [ ]

a) Deque
b) Priority
c) Tree
d) All of above

36. Deletion operation is done using _____ in a queue. [ ]

a) Front
b) Rear
c) Top
d) List

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

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

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

a) Finding factorial
b) Tower of Hanoi
c) Infix to postfix
d) All of the above

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

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

40. 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

41. A data structure where elements can be added or removed at either end but not in the middle. [ ]

a) Linked lists
b) Stacks
c) Queues
d) Deque

42. Which of the following is two way list? [ ]

a) Grounded header list
b) Circular header list
c) Linked list with header and trailer nodes
d) None of above

43. Which of the following data structure is linear data structure? [ ]

a) Trees
b) Graphs
c) Arrays
d) None of above

44. To represent hierarchical relationship between elements, which data structure is suitable? [ ]

a) Deque
b) Priority
c) Tree
d) All of above

45. Which of the following data structure is linear type? [ ]

a) Strings
b) Lists
c) Queues
d) All of above

46. Which of the following is not the type of queue? [ ]

a) Ordinary queue
b) Single ended queue
c) Circular queue
d) Priority queue

47. In dequeue, insertion and deletion takes place of _____. [ ]

a) Front, rear end
b) Only at rear end
c) Only at front end
d) Both the ends

48. The term dequeue is the contraction of the name_____. [ ]

a) Double ended queue
b) Double sided queue
c) Double headed queue
d) Double address queue

49. _____ is a collection of elements such that each element has been assigned a processing priority. [ ]

a) Priority queue
b) Procedure queue
c) Main queue
d) Interrupt queue

50. The queue in which the insertion takes place in the first position after of last element is ___. [ ]

a) Priority
b) Dequeue
c) Circular
d) Linked

Module IV Key

1. a
2. a
3. a
4. b
5. a
6. b
7. c
8. c
9. a
10. b
11. a
12. a
13. a
14. b
15. d
16. b
17. a
18. b
19. a
20. a
21. b
22. c
23. a
24. a
25. d
26. a
27. a
28. a
29. a
30. c
31. b
32. b
33. b
34. a
35. c
36. a
37. c

38. d
39. a
40. a
41. d
42. b
43. c
44. c
45. d
46. b
47. d
48. a
49. a
50. c

Module: V

1. Which of the following data structure is non- linear data structure? [ ]
   a) Trees
   b) Functions
   c) Arrays
   d) None of above

2. Finding the location of the element with a given value is_____. [ ]
   a) Traversal
   b) Search
   c) Sort
   d) None of above

3. Header node is used as sentinel in _____. [ ]
   a) Graphs
   b) Stacks
   c) Binary tree
   d) Queues

4. The depth of a complete binary tree is given by_____. [ ]
   a) $D_n = n \log_2 n$
   .b) $D_n = n \log_2 n+1$
   c) $D_n = \log_2 n$
   d) $D_n = \log_2 n+2$

5. When converting binary tree into extended binary tree, all the original nodes in binary tree are [ ]
   a) Internal nodes on extended tree
   b) External nodes on extended tree
   c) Vanished on extended tree
   d) None of above

6. The post order traversal of a binary tree is DEBFCA. Find out the pre order traversal
   a) ABFCDE [ ]
   b) ADBFEC
   c) ABDECF
   d) ABDCEF

7. In a binary tree, certain null entries are replaced by special pointers which point to nodes higher in the tree for efficiency. These special pointers are called_____. [ ]

a) Leaf
b) Branch
c) Path
d) Thread

8. If every node u in G is adjacent to every other node v in G, A graph is said to be.[ ]

a) Isolated
b) Complete
c) Finite
d) Strongly connected

9. In a graph if e=(u, v) means [ ]

a) u is adjacent to v but v is not adjacent to u
b) e begins at u and ends at v
c) u is processor and v is successor
d) Both b and c

10. A connected graph T without any cycles is called [ ]

a) A tree graph
b) Free tree
c) A tree
d) All of above

11. In a graph if e=[u, v], Then u and v are called [ ]

a) Endpoints of e
b) Adjacent nodes
c) Neighbors
d) All of above

12. A binary tree whose every node has either zero or two children is called [ ]

a) Complete binary tree
b) Binary search tree
c) Extended binary tree
d) None of above

13. Maximum number of nodes in a binary tree with height k, where root is height 0, is [ ]

a) $2^k - 1$
b) $2^{k+1} - 1$
c) 2^k
d) 2^{k+1}

14. If locality is a concern, you can use _____ to traverse the graph. [ ]

a) Breadth First Search
b) Depth First Search
c) Either BFS or DFS
d) None of the above

15. Three standards ways of traversing a binary tree T with root R_____[ ]

a) Prefix, infix, postfix
b) Pre-process, in-process, post-process
c) Pre-traversal, in-traversal, post-traversal
d) Pre-order, in-order, post-order

16. The no of external nodes in a full binary tree with n internal nodes is? [ ]

a) n
b) n+1
c) 2n
d) 2n + 1

17. Which type of traversal of binary search tree outputs the value in sorted order? [ ]

a) Pre-order
b) In-order
c) Post-order
d) None

18. A threaded binary tree is a binary tree in which every node that does not have right child has a thread to its [ ]

a) Pre-order successor
b) In-order successor
c) In-order predecessor
d) Post-order successor

19. Other name for directed graph is_____. [ ]

a) Direct graph
b) Digraph
c) Dir-graph
d) Simple graph

20. Binary trees with threads are called as_____. [ ]

a) Threaded trees
b) Pointer trees
c) Special trees
d) Special pointer trees

21. In Binary trees nodes with no successor are called _____. [ ]

a) End nodes
b) Terminal nodes
c) Final nodes
d) Last nodes

22. A terminal node in a binary tree is called_____. [ ]

a) Root
b) Leaf
c) Child
d) Branch

23. In a extended-binary tree nodes with 2 children are called _____. [ ]

a. Interior node
b) Domestic node
c) Internal node
d) Inner node

24. Which indicates pre-order traversal? [ ]

a) Left sub-tree, Right sub-tree and root
b) Right sub-tree, Left sub-tree and root
c) Root, Left sub-tree, Right sub-tree
d) Right sub-tree, root, Left sub-tree

25. Linked representation of binary tree needs _____ parallel arrays. [ ]

a) 4
b) 2
c) 3
d) 5

26. Sequential representation of binary tree uses _____. [ ]

a) Array with pointers
b) Single linear array
c) Two dimensional arrays
d) Three dimensional arrays

27. A graph is said to be _____ if its edges are assigned data. [ ]

a) Tagged
b) Marked
c) Labeled
d) Stacked

28. A binary tree whose every node has either zero or two children is called_____. [ ]

a) Complete binary tree
b) Binary Search tree
c) Extended binary tree
d) E2 tree

29. A graph is said to be ..... if every node u in G is adjacent to every other node v in G.

[ ]

a) Absolute
b) Entire
c) Inclusive
d) Complete

30. In-order traversing a tree resulted E A C K F H D B G; the pre-order traversal would return.

[ ]

a) FAEKCDBHG
b) FAEKCDHGB
c) EAFKHDCBG
d) FEAKDCHBG

31. In the_____ traversal we process all of a vertex's descendants before we move to an Adjacent vertex. [ ]

a) Depth First
b) Breadth First
c) With First
d) Depth Limited

32. Pre-order traversal is also called_____. [ ]

a) Depth First search
b) Breadth First Search
c) Level-order
d) In-order

33. Two-way threaded binary tree is also called_____. [ ]

a) One-way
b) Single Thread
c) Double Thread
d) None of the above

34. Degree of a leaf node is_____. [ ]

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

35. The depth of root node is_____. [ ]

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

36. Parent node is also known as the_____. [ ]

a) Left node
b) Right node
c) Ascendant node
d) None of the above

37. _____traversal algorithm is used to extract a prefix notation from an expression tree.

[ ]

a) In-order
b) Post-order
c) Pre-order
d) Tree

38. Nodes at the same level that share the same parent are called_____. [ ]

a) Left node
b) Siblings
c) Right node
d) Root node

39. In a binary tree, every node can have a maximum of _____successors. [ ]

a) 2
b) 1
c) 3
d) 4

40. The memory use of an adjacency matrix is_____. [ ]

a) O(n)
b) O(n2)
c) O (log n)
d) Above all

41. An edge that has identical end-points is called a_____. [ ]

a) Multi-path
b) Loop
c) Cycle
d) Multi-edge

42. If the thread appears in the right filed, then it will point to the _____of the node.

[ ]

a) In-order successor
b) Pre-order successor
c) Post-order successor
d) None of above.

43. _____algorithm is greedy algorithm that is used to form a minimum spanning tree for a connected weighted undirected graph. [ ]

a) Kruskal's
b) Dijkstra's
c) Warshall's
d) Prim's

44._____ is a graph search algorithm that begins at the root node and explores all the neighboring node. [ ]

a) DFS
b) BFS
c) Spanning Tree
d) DAG

45. The total number of edges containing the node is called_____. [ ]

a) In-degree
b) Out-degree
c) Degree
d) Cycle

46. A_____ graph is defined as a connected graph that has no articulation vertices.

[ ]

a) Directed
b) Undirected
c) Bio-connected
d) Multi-connected

47. _____ algorithm is used to find the length of an optimal path between two nodes in A graph.

[ ]

a) Kruskal's
b) Dijkstra's
c) Warshall's
d) Prim's

48. OSPF stands for _____. [ ]

a) . Open Shortest Path First
b) Open Sharing Path First
c) Operating System Path First
d) Open Spanning Path First

49. Adjacency matrix is also known as a _____. [ ]

a) Bit matrix
b) Double matrix
c) Express matrix
d) Single matrix

50. The term optimal can mean _____. [ ]

a) Shortest
b) Cheapest
c) Fastest
d) All of these

Module V Key

1. a
2. b
3. a
4. b
6. c
7. d
8. b
9. d
10. d
11. d
12. c
13. b
14. b
15. d
16. b
17. b
18. b
19. b
20. a
21. b
22. a
23. c

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