Sub: DSU MCQ on Unit-4 Linked List

1) To insert a new node in linked list free node will be available in ....

A. Available list

B. Avail list

C. Free node list

D. Memory space list

2) A singly linked list is also called as ....

A. linked list

B. one way chain

C. two way chain

D. right link

3) A ..... list is a header list where the node points back to the header node.

A. Circular header

B. Grounded header

C. Two way header

D. One way header

4) A doubly linked list has .... pointers with each node.

A. 0

B. 1

C. 2

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D. 3

5) Header linked lists are frequently used for maintaining .... in memory.

A. Polynomials

B. Binomial

C. Trinomial

D. Quadratic equation

6) The pointer that points to the first node in the list is ....

A. FIRST

B. AVAIL

C. TOP

D. REAR

7) Two-way list may be maintained in memory by means of ....

A. Queues

B. Linear arrays

C. Non linear arrays

D. Stacks

8) A doubly linked list is also called as ....

A. linked list

B. one way chain

C. two way chain

D. right link

9) The list that requires two pointer variables FIRST and LAST is called ....

A. Circular list

B. Header list

C. One way list

D. Two way list

10) If the availability list is null, then the condition is said to be ....

A. nil block

B. availability list underflow

C. availability list overflow

D. memory loss

11) The list which has its own pointer is called ....

A. pointer list

B. self pointer

C. free pool

D. own pointer

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12) Which of the following is two way lists?

A. Grounded header list

B. Circular header list

C. Linked list with header and trailer nodes

D. None of the above

13) A .... is a header list where the last node contains the null pointer.

A. grounded header list

B. bottom header list

C. down header list

D. dropped header list

14) RLINK is the pointer pointing to the ...

A. successor node

B. predecessor node

C. head node

D. last node

15) A .... is a header list where the last node points back to the header node.

A. rounded header list

B. circular header list

C. common header list

D. forward header list

16) In a linked list, insertion can be done as ....

A. beginning

B. end

C. middle

D. all of the above

17) In a two-way lists each node is divided into ....parts.

A. 1

B. 2

C. 3

D. 4

18) The disadvantage in using a circular linked list is ....

A. it is possible to get into infinite loop

B. last node points to fist node.

C. time consuming

D. requires more memory space.

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19) Which of the following conditions checks available free space in avail list?

A. Avail=Null

B. Null=Avail

C. Avail=Max stack

D. Avail=Top

20) A linear list in which each node has point to the predecessor and successors nodes is called ....

A. singly linked list

B. circular linked list

C. doubly linked list

D. linear linked list

------------1) 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

2) The operation of processing each element in the list is known as ......

A. sorting

B. merging

C. inserting

D. traversal

3) The situation when in a linked list START=NULL is ....

A. Underflow

B. Overflow

C. Houseful

D. Saturated

4) Each node in singly linked list has .... fields.

A. 2

B. 3

C. 1

D. 4

5) Which of the following is two way lists?

A. Grounded header list

B. Circular header list

C. Linked list with header and trailer nodes

D. List traversed in two directions

Sub: DSU MCQ on Unit-4 Linked List

6) Which is the pointer associated with the availability list?

A. FIRST

B. AVAIL

C. TOP

D. REAR

7) Value of first linked list index is ....

A. 0

B. 1

C. -1

D. 2

8) 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

9) Each node in a linked list must contain at least .....

A. Three fields

B. Two fields

C. Four fields

D. Five fields

10) The dummy header in linked list contain .....

A. first record of the actual data

B. last record of the actual data

C. pointer to the last record of the actual data

D. middle record of the actual data

11) In a linked list the .... field contains the address of next element in the list.

A. Link field

B. Next element field

C. Start field

D. Info field

12) LLINK is the pointer pointing to the ...

A. successor node

B. predecessor node

C. head node

D. last node

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13) .... refers to a linear collection of data items.

A. List

B. Tree

C. Graph

D. Edge

14) A run list is ......

A. small batches of records from a file

B. number of elements having same value

C. number of records

D. number of files in external storage

15) A ...... indicates the end of the list.

A. Guard

B. Sentinel

C. End pointer

D. Last pointer

16) A .... is a linear list in which insertions and deletions are made to from either end of the structure.

A. circular queue

B. random of queue

C. priority

D. dequeue

17) Indexing the .... element in the list is not possible in linked lists.

A. middle

B. first

C. last

D. any where in between

18) 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 of the above

19) .... may take place only when there is some minimum amount(or) no space left in free storage list.

A. Memory management

B. Garbage collection

C. Recycle bin

D. Memory management

20) A linear list in which the last node points to the first node is ....

A. singly linked list

B. circular linked list

C. doubly linked list

D. none of the above

21) What is the time complexity to count the number of elements in the linked list?

A. O(1)
B. O(n)
C. O(logn)
D. O(n^2)

22) What is the space complexity for deleting a linked list?
A. O(1)
B. O(n)
C. O(logn)
D. O(n^2)

23) Which of these is not an application of a linked list?
A. To implement file systems
B. For separate chaining in hash-tables
C. To implement non-binary trees
D. Random Access of elements

24) What differentiates a circular linked list from a normal linked list?
A. You cannot have the 'next' pointer point to null in a circular linked list
B. It is faster to traverse the circular linked list
C. You may or may not have the 'next' pointer point to null in a circular linked list
D. All of the mentioned

25) 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.

26. A linear collection of data elements where the linear node is given by means of pointer is called?

a) Linked list
b) Node list
c) Primitive list
d) None

27. Which of the following operations is performed more efficiently by doubly linked list than by singly linked list?

a) Deleting a node whose location in given
b) Searching of an unsorted list for a given item
c) Inverting a node after the node with given location
d) Traversing a list to process each node

28. Consider an implementation of unsorted singly linked list. Suppose it has its representation with a head and tail pointer. Given the representation, which of the following operation can be implemented in O(1) time?

i) Insertion at the front of the linked list
ii) Insertion at the end of the linked list
iii) Deletion of the front node of the linked list
iv) Deletion of the last node of the linked list

a) I and II
b) I and III
c) I,II and III
d) I,II and IV

29. In linked list each node contain minimum of two fields. One field is data field to store the data second field is?

a) Pointer to character
b) Pointer to integer

c) Pointer to node
d) Node

30. The concatenation of two list can performed in O(1) time. Which of the following variation of linked list can be used?

a) Singly linked list
b) Doubly linked list
c) Circular doubly linked list
d) Array implementation of list

31. Consider the following definition in c programming language

struct node
{
int data;
struct node * next;
}
typedef struct node NODE;
NODE *ptr;

Which of the following c code is used to create new node?

a) ptr=(NODE*)malloc(sizeof(NODE));
b) ptr=(NODE*)malloc(NODE);
c) ptr=(NODE*)malloc(sizeof(NODE*));
d) ptr=(NODE)malloc(sizeof(NODE));

32. A variant of linked list in which last node of the list points to the first node of the list is?

a) Singly linked list
b) Doubly linked list
c) Circular linked list
d) Multiply linked list

33. **In doubly linked lists, traversal can be performed?**

a) Only in forward direction
b) Only in reverse direction

c) In both directions
d) None

34. **What kind of linked list is best to answer question like "What is the item at position n?"**

a) Singly linked list
b) Doubly linked list
c) Circular linked list
d) Array implementation of linked list

35. **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

36. **In circular linked list, insertion of node requires modification of?**

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

37. **Which of the following statements about linked list data structure is/are TRUE?**

a) Addition and deletion of an item to/ from the linked list require modification of the existing pointers
b) The linked list pointers do not provide an efficient way to search an item in the linked list
c) Linked list pointers always maintain the list in ascending order
d) The linked list data structure provides an efficient way to find kth element in the list

38. **Linked lists are not suitable to for the implementation of?**

a) Insertion sort

b) Radix sort
c) Polynomial manipulation
d) Binary search

39. **In worst case, the number of comparison need to search a singly linked list of length n for a given element is**

a) log n
b) n/2
c) $\log_2 n - 1$
d) n

40. What should be added in place of "/*ADD A STATEMENT HERE*/", so that the function correctly reverses a linked list.
a) *head_ref = prev;
b) *head_ref = current;
c) *head_ref = next;
d) *head_ref = NULL;

41. Consider an implementation of unsorted singly linked list. Suppose it has its representation with a head pointer only.
Given the representation, which of the following operation can be implemented in O(1) time?

  i) Insertion at the front of the linked list
  ii) Insertion at the end of the linked list
  iii) Deletion of the front node of the linked list
  iv) Deletion of the last node of the linked list

  A. I and II
  B. I and III
  C. I, II and III
  D. I, II and IV

42. In linked list each node contain minimum of two fields. One field is data field to store the data second field is?

  A. Pointer to character
  B. Pointer to integer

C. Pointer to node
D. Node

43. What would be the asymptotic time complexity to find an element in the linked list?

A. O(1)
B. O(n)
C. O(n2)
D. None of the mentioned

44. The concatenation of two list can performed in O(1) time. Which of the following variation of linked list can be used?

A. Singly linked list
B. Doubly linked list
C. Circular doubly linked list
D. Array implementation of list

45. What kind of linked list is best to answer question like "What is the item at position n"?

A. Singly linked list
B. Doubly linked list
C. Circular linked list
D. Array implementation of linked list

46. Linked lists are not suitable to for the implementation of?

A. Insertion sort
B. Radix sort
C. Polynomial manipulation
D. Binary search

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

A. Dynamic
B. Static
C. Compile time
D. None of the mentioned

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48. In Linked List implementation, a node carries information regarding

    A. Data
    B. Link
    C. Data and Link
    D. None of the mentioned

49. Linked list data structure offers considerable saving in

    A. Computational Time
    B. Space Utilization
    C. Space Utilization and Computational Time
    D. None of the mentioned

50. Which of the following points is/are true about Linked List data structure when it is compared with array

    A. Arrays have better cache locality that can make them better in terms of performance
    B. It is easy to insert and delete elements in Linked List
    C. Random access is not allowed in a typical implementation of Linked Lists
    D. All of the mentioned

51. Which of the following sorting algorithms can be used to sort a random linked list with minimum time complexity?

    A. Insertion Sort
    B. Quick Sort
    C. Heap Sort
    D. Merge Sort

52. Given pointer to a node X in a singly linked list. Only one pointer is given, pointer to head node is not given, can we delete the node X from given linked list?

    A. Possible if X is not last node
    B. Possible if size of linked list is even
    C. Possible if size of linked list is odd
    D. Possible if X is not first node

Sub: DSU MCQ on Unit-4 Linked List

53. A linear collection of data elements where the linear node is given by means of pointer is called?

  A. linked list
  B. node list
  C. primitive list
  D. None of these

54. What is the time complexity to count the number of elements in the linked list?

  A. O(1)
  B. O(n)
  C. O(logn)
  D. None of the mentioned

55. Linked lists are not suitable to for the implementation of?

  A. Insertion sort
  B. Radix sort
  C. Polynomial manipulation
  D. Binary search

56. In the worst case, the number of comparisons needed to search a singly linked list of length n for a given element is

  A. log 2 n
  B. n/2
  C. log 2 n – 1
  D. n

57. Which of these is an application of linked lists?

  A. To implement file systems
  B. For separate chaining in hash-tables
  C. To implement non-binary trees
  D. All of the mentioned

  58. What is a memory efficient double linked list?

a) Each node has only one pointer to traverse the list back and forth

b) The list has breakpoints for faster traversal

c) An auxiliary singly linked list acts as a helper list to traverse through the doubly linked list

d) A doubly linked list that uses bitwise AND operator for storing addresses

59. How do you calculate the pointer difference in a memory efficient double linked list?
a) head xor tail
b) pointer to previous node xor pointer to next node
c) pointer to previous node – pointer to next node
d) pointer to next node – pointer to previous node

60. Indexing the........ element in the list is not possible in linked lists.
 a. first
 b. middle
 c. last
  d. All of the above

61. What differentiates a circular linked list from a normal linked list?
a) You cannot have the 'next' pointer point to null in a circular linked list
b) It is faster to traverse the circular linked list
c) You may or may not have the 'next' pointer point to null in a circular linked list
d) All of the mentioned

62. Which of the following application makes use of a circular linked list?
A. Undo operation in a text editor
B. Recursive function calls
C. Allocating CPU to resources
D. All

63. Consider a small circular linked list. How to detect the presence of cycles in this list effectively?
A. Keep one node as head and traverse another temp node till the end to check if its 'next points to head
B. Have fast and slow pointers with the fast pointer advancing two nodes at a time and slow pointer advancing by one node at a time

Sub: DSU MCQ on Unit-4 Linked List

C. Cannot determine, you have to pre-define if the list contains cycles
D. None of the mentioned

64. Consider an implementation of unsorted doubly linked list. Suppose it has its representation with a head pointer only. Given the representation, which of the following operation can be implemented in O(1) time?

i) Insertion at the front of the linked list
ii) Insertion at the end of the linked list
iii) Deletion of the front node of the linked list
iv) Deletion of the end node of the linked list

a) I and II
b) I and III
c) I,II and III
d) I,II,III and IV

65. Consider an implementation of unsorted circular linked list. Suppose it has its representation with a head pointer only. Given the representation, which of the following operation can be implemented in O(1) time?

i) Insertion at the front of the linked list
ii) Insertion at the end of the linked list
iii) Deletion of the front node of the linked list
iv) Deletion of the end node of the linked list

a) I and II
b) I and III
c) I, II, III and IV
d) None

66. The concatenation of two list can performed in O(1) time. Which of the following variation of linked list can be used?

a) Singly linked list
b) Doubly linked list
c) Circular doubly linked list
d) Array implementation of list

67. **consider the function f defined here:**

struct item
{
int data;
struct item * next;
};
int f (struct item *p)
{
return((p==NULL) ||((p->next==NULL)||(p->data<=p->next->data) && (p->next)));
}

For a given linked list p, the function f returns 1 if and only if
a) the list is empty or has exactly one element
b) the element in the list are sorted in non-decreasing order of data value
c) the element in the list are sorted in non-increasing order of data value

d) not all element in the list have the same data value

68. Let the following circular queue can accommodate maximum six elements with the following data

front = 2 rear = 4
queue = _____; L, M, N, ____, ____
What will happen after ADD O operation takes place?
a) front = 2 rear = 5
queue = _____; L, M, N, O, ___
b) front = 3 rear = 5
queue = L, M, N, O, ____
c) front = 3 rear = 4
queue = _____; L, M, N, O, ___
d) front = 2 rear = 4
queue = L, M, N, O, ____

69. In Breadth First Search of Graph, which of the following data structure is used?

a) Stack
b) Queue
c) Linked list
d) None

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70. In the array implementation of circular queue, which of the following operation take worst case linear time?

a) Insertion
b) Deletion
c) To empty a queue
d) None

71. A circular queue is implemented using an array of size 10. The array index starts with 0, front is 6, and rear is 9. The insertion of next element takes place at the array index.

a) 0
b) 7
c) 9
d) 10

72. In linked list implementation of a queue, front and rear pointers are tracked. Which of these pointers will change during an insertion into a NONEMPTY queue?

a) Only front pointer
b) Only rear pointer
c) Both front and rear pointer
d) None of the front and rear pointer

73. Generally collection of Nodes is called as _____.

   a. Heap
   b. Pointer
   c. **Linked list**
   d. Stack

74. Each Node contain minimum two fields one field called data field to store data. Another field is of type _____.

   a. Pointer to Character
   b. Pointer to Class
   c. Pointer to an Integer
   d. **Pointer to Node**
      75. In Linked list implementation, a node carries information regarding _____.

a. Data
b. Link
c. **Data and link**
d. none

76. Consider linked list is used to implement the Stack then which of the following node is considered as Top of the Stack ?
    a. Middle Node
    b. Last node
    c. **First node**
    d. Any node

77. Can stack be describe as a pointer?
    a. **Yes**
    b. No

78. On which principle does stack work?
    a. **FIFO**
    b. Lifo
    c. Both
    d. None

79. . Given pointer to a node X in a singly linked list. Only one pointer is given, pointer to head node is not given, can we delete the node X from given linked list?

A. Possible if X is not last node
B. Possible if size of linked list is even
C. Possible if size of linked list is odd
D. Possible if X is not first node

80. The situation when in a linked list START=NULL is ....

A. Underflow

B. Overflow

C. Houseful

D. Saturated

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Total= 20 + 80 = 100