Sub: DSU MCQ on Unit-3 Stacks & Queues

1. Stack is also called as

A First in first out

B First in last out

C Last in last out

D Last in first out

2. Any node is the path from the root to the node is called

A Ancestor node

B Successor node

C Internal node

D None of the above

3. Which of the following is not the type of queue?

A. Priority queue
B. Circular queue
C. **Single ended queue**
D. Ordinary queue

4. ..... form of access is used to add and remove nodes from a queue.
   A. LIFO, Last In First Out
   B. FIFO, First In First Out
   C. Both a and b
   D. None of these
5. In liked representation of stack ..... holds the elements of the stack.
   A. INFO fields
   B. TOP fields
   C. LINK fields
   D. NULL fields
6. ..... form of access is used to add remove nodes from a stack.
   A. LIFO
   B. FIFO
   C. Both A and B
   D. None of these
7. In the linked representation of the stack ..... behaves as the top pointer variable of stack.
   A. Stop pointer
   B. Begin pointer
   C. Start pointer
   D. Avail pointer
8. New nodes are added to the ..... of the queue.
   A. Front

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B. Back
C. Middle
D. Both A and B

9. 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
10. 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
11. A queue is a .....
   A. FIFO
   B. LIFO
   C. FILO
   D. LOFI
12. Which of the following name does not relate to stacks?
   A. FIFO lists
   B. LIFO lists
   C. Piles
   D. Push down lists
13. The retrieval of items in a stack is ..... operation.
   A. push
   B. pop
   C. retrieval
   D. access
14. The term push and pop is related to
   A. Array
   B. Lists
   C. Stacks
   D. Trees
15. Which is the pointer associated with the stack?
   A. FIRST
   B. FRONT
   C. TOP
   D. REAR
16. The elements are removal from a stack in ..... order.
   A. Reverse
   B. Hierarchical

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C. Alternative

D. Sequential

17. The insertion operation in the stack is called .....

A. insert

B. push

C. pop

D. top

18. ..... is the term used to insert an element into stack.

A. Push

B. Pull

C. Pop

D. Pump

19. Stack follows the strategy of .....

A. LIFO

B. FIFO

C. LRU

D. RANDOM

20. ..... is the term used to delete an element from the stack.

A. Push

B. Pull

C. Pop

D. Pump

21. Deletion operation is done using ..... in a queue.

A. front

B. rear

C. top

D. list

22. A pointer variable which contains the location at the top element of the stack is called .....

A. Top

B. Last

C. Final

D. End

23. Which of the following is an application of stacks?

A. finding factorial

B. tower of Hanoi

C. infix to postfix

D. all of the above

24. Linked lists are best suited .....

A. for relatively permanent collections of data.

B. the size of the structure and the data in the structure are constantly changing.

C. data structure

D. for none of the above situation

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

A. sorting

B. merging

C. inserting

D. traversal

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26. The situation when in a linked list START=NULL is ….
    A. Underflow
    B. Overflow
    C. Houseful
    D. Saturated
27. ach node in singly linked list has …….. fields.
    A. 2
    B. 3
    C. 1
    D. 4
28. Which of the following are 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
29. Which is the pointer associated with the availability list?
    A. FIRST
    B. AVAIL
    C. TOP
    D. REAR
30. Value of first linked list index is ….
    A. 0
    B. 1
    C. -1
    D. 2
31. 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
32. Each node in a linked list must contain at least …..
    A. Three fields
    B. Two fields
    C. Four fields
    D. Five fields
33. 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
34. 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
35. LLINK is the pointer pointing to the …
    A. successor node

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B. predecessor node
C. head node
D. last node

36. ……. refers to a linear collection of data items.
A. List
B. Tree
C. Graph
D. Edge

37. 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

38. A …… indicates the end of the list.
A. Guard
B. Sentinel
C. End pointer
D. Last pointer

39. 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

40. Indexing the …….. element in the list is not possible in linked lists.
A. middle
B. first
C. last
D. any where in between

41. 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

42. ……. 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

43. 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

44. Choose correct output for the following sequence of operations.
push(5)

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push(8)
pop
push(2)
push(5)
pop
pop
pop
push(1)
pop
A.8 5 2 5 1
B.8 5 5 2 1
C.8 2 5 5 1
D.8 1 2 5 5

45. Postfix form of following expression. D + (E * F)
    A. EF * D+
    B.DEF * +
    C. DEF +*
    D. EFD *+
46. When function calls another function then the details of previous function are stored in Stack ?
    A. True
    B. False
47. How many stacks are needed to implement a queue. Consider the situation where no other data structure like arrays, linked list is available to you.
    A. 2
    B.3
    C. 4
    D. 5
48. Which of the following is true about linked list implementation of queue?
    A. In push operation, if new nodes are inserted at the beginning of linked list, then in pop operation, nodes must be removed from end.
    B. In push operation, if new nodes are inserted at the end, then in pop operation, nodes must be removed from the beginning.
    C. Both of the above
    D. None of the above
49. Suppose a circular queue of capacity (n – 1) elements is implemented with an array of n elements. Assume that the insertion and deletion operation are carried out using REAR and FRONT as array index variables, respectively. Initially, REAR = FRONT = 0. The conditions to detect queue full and queue empty are
    A. Full: (REAR+1) mod n == FRONT, empty: REAR == FRONT
    B. Full: (REAR+1) mod n == FRONT, empty: (FRONT+1) mod n == REAR
    C. Full: REAR == FRONT, empty: (REAR+1) mod n == FRONT
    D. Full: (FRONT+1) mod n == REAR, empty: REAR == FRONT
50. In linked list implementation of queue, if only front pointer is maintained, which of the following operation take worst case linear time?
    A. Insertion
    B. Deletion

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C. To empty a queue

D. **Both Insertion and To empty a queue**

51. If the elements "A", "B", "C" and "D" are placed in a queue and are deleted one at a time, in what order will they be removed?

A. ABCD

B. DCBA

C. DCAB

D. ABCD

52. Circular Queue is also called _____

a) Square Buffer

b) Ring Buffer

c) Rectangle Buffer

d) Curve Buffer

53. What kind of a datastructure does a queue is?

A. Linear

B. non-linear

C. both A&B

D. none

54. What is the operation we perform on Queues?

A. FIRST-IN –LAST-OUT

B. FIRST-IN-FIRST-OUT

C. BOTH A&B

D. None

55. Which one of the following terms we use to mention the number of elements that a queue can hold?

A. LENGTH

B. SIZE

C. CAPACITY

D. DATA

56. Similarly in DEQUEUEs, insertion is performed at ___ end whereas the deletion is performed at __ end.

A. FRONT, REAR

B. REAR, FRONT.

C. Both A & B

D. None of the above

57. _____ helps us to implement Breadth First Traversal on a graph.

A. Stack.

B. Array

C. Queue

D. Linked List

58. Consider P,Q,R and S are the four elements in a queue. If we delete an element at a time then on which order they will get deleted?

A. PQRS

B. SRQP

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C. PSQR
D. SRPQ

59. 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 of__.

A. 0
B. 7
C. 9
D. 10

60. 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

61. Stack is used for

a. CPU Resource Allocation
b. Breadth First Traversal
c. Recursion
d. None of the above

62. Prefix notation is also known as

a. Reverse Polish Notation
b. Reverse Notation
c. Polish Reverse Notation
d. Polish Notation

63. In conversion from prefix to postfix using stack data-structure, if operators and operands are pushed and popped exactly once, then the run-time complexity is

a. O(1)
b. O(n)
c. O(log n)
d. O(n2)

64. If queue is implemented using arrays, what would be the worst run time complexity of queue and dequeue operations?

a. O(n), O(n)
b. O(n), O(1)
c. O(1), O(n)
d. O(1), O(1)

65. In C programming, when we remove an item from bottom of the stack, then –

a. The stack will fall down.
b. Stack will rearranged items.
c. It will convert to LIFO
d. This operation is not allowed.

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66. Identify the data structure which allows deletions at both ends of the list but insertion at only one end.
    a. Input restricted dequeue
    b. Output restricted qequeue
    c. Priority queues
    d. Stack
67. n a queue, the initial values of front pointer f rare pointer r should be …… and ……. respectively.
    a. 0 and 1
    b. 0 and -1
    c. -1 and 0
    d. 1 and 0
68. Which of the following statement is true?
    i) Using singly linked lists and circular list, it is not possible to traverse the list backwards.
    ii) To find the predecessor, it is required to traverse the list from the first node in case of singly linked list.
    a. i-only
    b. ii-only
    c. Both i and ii
    d. None of the above
69. What will be the value of top, if there is a size of stack STACK_SIZE is 5
    a. 5
    b. 6
    c. 4
    d. None of the above
70. When does top value of the stack changes?
    a. Before deletion
    b. While checking underflow
    c. At the time of deletion
    d. After deletion

71. In a priority queue, insertion and deletion takes place at ……
    a. front, rear end
    b. only at rear end
    c. only at front end
    d. any position
72. The postfix form of the expression (A + B)∗(C∗D − E)∗F / G is
    a. AB + CD∗E − FG /∗∗
    b. / AB + CD ∗ E − F ∗∗G /
    c. AB + CD ∗ E − ∗F ∗ G /
    d. AB + CDE ∗ − ∗ F ∗ G /
73. What is the postfix form of the following prefix expression -A/B*C$DE ?
    a. ABCDE$*/-

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b. A-BCDE$*/-
c. ABC$ED*/-
d. A-BCDE$*/

74. The minimum number of multiplications and additions required to evaluate the polynomial P = 4x3+3x2-15x+45 is
a. 6 & 3
b. 4 & 2
c. 3 & 3
d. 8 & 3

75. he postfix form of A*B+C/D is
a. *AB/CD+
b. AB*CD/+
c. A*BC+/D
d. ABCD+/*

76. What is the postfix form of the following prefix: *+ab–cd
a. ab+cd–*
b. abc+*–
c. ab+*cd–
d. ab+*cd–

77. Which data structure is needed to convert infix notation to postfix notation?
a. Branch
b. Queue
c. Tree
d. Stack

78. **The prefix form of A-B/ (C * D ^ E) is,**
a. -/*^ACBDE
b. -ABCD*^DE
c. -A/B*C^DE
d. -A/BC*^DE

79. What is the result of the following operation: Top (Push (S, X))
a. X
b. null
c. S
d. None of these

80. The prefix form of an infix expression p + q − r t* is
a. + pq − rt
b. − +pqr t*
c. − +pq*rt
d. - +*pqrt

81. The equivalent prefix expression for the following infix expression (A+B)-(C+D*E)/F*G is
a. -+AB*/+C*DEFG
b. /-+AB*+C*DEFG
c. -/+AB*+CDE*FG
d. -+AB*/+CDE*FG

82. The result of evaluating the postfix expression 5, 4, 6, +, *, 4, 9, 3, /, +, * is
a. 600

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b. 350
c. 650
d. 588

83. In Reverse Polish notation, expression A*B+C*D is written as
a. AB*CD*+
b. A*BCD*+
c. AB*CD+*
d. A*B*CD+

84. A common example of a queue is people waiting in line at a_____.
a. Bus stop
b. Movie hall
c. Shopping mall
d. None of the above

85. When a stack is organized as an array, a variable named Top is used to point to the top element of the stack. Initially, the value of Top is set to_____to indicate an empty stack.
a. -1
b. 0
c. 1
d. x

86. Jan Lukasiewicz, who suggested two alternative notations to represent an arithmetic expression belonged to which nationality?
a. English
b. Polish
c. German
d. Swedish

87. The postfix form of the following infix notation is : (A + B)* (C*D − E)* F
a. AB + CD*E − *F*
b. AB+ CDE + − * F*
c. AB+ CD − EF + − **
d. ABCDEF* − + * +

88. What are the sequence of popped out values if the sequence of operations - push(1), push(2), pop, push(1), push(2), pop, pop, pop, push(2), pop are performed on a stack.
a. 2, 2, 1, 1, 2
b. 2, 2, 1, 2, 2
c. 2, 1, 2, 2, 1
d. 2, 1, 2, 2, 2

89. The result of evaluating the following postfix expression is 5, 7, 9, *, +, 4, 9, 3, /, +, -
a. 50
b. 65
c. 61
d. 70

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90. The prefix form of an infix expression A+B-C*D is
    a. +AB-*CD
    b. -+A B C * D
    c. -+A B * C D
    d. - + *ABCD
91. n elements of a Queue are to be reversed using another queue. The number of "ADD" and "REMOVE" operations required to do so is:
    a. 2*n
    b. 4*n
    c. n
    d. The task cannot be accomplished
92. The postfix form of A ^ B * C - D + E/ F/ (G + H)
    a. AB^C*D-EF/GH+/+
    b. AB^CD-EP/GH+/+*
    c. ABCDEFGH+//+-*^
    d. AB^D +EFGH +//*+
93. The prefix of (A+B)*(C-D)/E*F is:
    a. /+-AB*CD
    b. /*+-ABCD*EF
    c. */*+AB-CDEF
    d. **AB+CD/EF
94. User perform following operations on stack of size 5 then -
    push(1);
    pop();
    push(2);
    push(3);
    pop();
    push(4);
    pop();
    pop();
    push(5);
    at the end of last operation, total number of elements present in the stack are –
    a. 3
    b. 4
    c. 2
    d. 1
95. Consider Stack is implemented using the array. What will be the initial value with which top is initialized.
    #define MAX 10
    struct STACK
    {
    int arr[MAX]
    int top = _____;
    }
    a. 0
    b. -1
    c. Garbage

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d. 1

96. What will be the postfix expression for following infix expression: b * c + d / e
    a. b*cde/+
    b. bcd*e/+
    c. bc*de/+
    d. bc*de+/
97. What will be the postfix expression for following infix expression A / B ^ C - D
    a. A B / ^ C D -
    b. A B ^ / C D -
    c. A B C ^ / D -
    d. A B C / ^ D –
98. What will be the postfix expression for following infix expression A + B * C ^ D
    a. ABCD*+^
    b. ABC+D*^
    c. ABCD+*^
    d. ABCD^*+
99. Evaluate Postfix expression from given infix expression. A + B * (C + D) / F + D * E
    a. AB+CD*F/+D*E
    b. ABCD+*F/+DE*+
    c. ABCD+*/F+DE*
    d. AB+CD*F/+DE*
100. Which of the following is an example of Postfix expression ?
    a. (A + B) / C
    b. A B C ^ / D E * + A C * -
    c. * + A B C
    d. None of these