BRAINWARE UNIVERSITY

Term End Examination 2021 - 22
Programme – Bachelor of Technology in Computer Science & Engineering
Course Name – Data Structure and Algorithm
Course Code - BCSE201
(Semester II)

Time allotted : 1 Hrs.25 Min. **Full Marks : 70**

[The figure in the margin indicates full marks.]

Group-A

(Multiple Choice Type Question) 1 x 70=70

Choose the correct alternative from the following :

(1) Algorithm is
a) Step by step process to solve a problem
b) Pictorial representation to solve a problem
c) Solving a problem anyhow
d) All of these

(2) The big O notation represents
a) Upper bound
b) Lower bound
c) Tight bound
d) No bound

(3) The omega notation represents
a) Upper bound
b) Lower bound
c) Tight bound
d) No bound

(4) Two factors that defines the efficiency of an algorithm are
a) Time and space
b) Space and complexity
c) Time and complexity
d) Time and data

(5) O(1) mean
a) Time is constant
b) Time is quadratic
c) Time is linear
d) Time is logarithm

(6) O(log n) mean
a) Time is constant
b) Time is quadratic
c) Time is linear
d) Time is logarithm

(7) Row major order is a method to arrange elements sequentially .....
a) Column wise
b) Row wise
c) Table wise
d) Linear wise

(8) In sparse matrix, most elements are
a) 0
b) empty
c) 1
d) 2

(9) Array is a collection of
a) Homogenous elements
b) Heterogeneous elements

c) Both (a) & (b)
d) None of these

(10) Matrix with maximum numbers of 0 elements but not all is
a) Zero matrix
b) Identity matrix
c) Sparse matrix
d) Null matrix

(11) ..... follow LIFO method
a) Stack
b) Queue
c) Linked List
d) Circular Linked List

(12) ..... memory allocation is used in Linked list.
a) static
b) dynamic
c) linear
d) random

(13) Each data-address pair in Linked list is called
a) Node
b) Head
c) Pointer
d) Data

(14) How many pointer/s needed to implement double Linked list?
a) 1
b) 3
c) 2
d) 4

(15) In circular Linked list, the last pointer holds the address of
a) Previous node
b) First node
c) Next node
d) Null

(16) Traversing back is not possible in which type of Linked list?
a) Singly Linked List
b) Doubly Linked List
c) Straight Linked List
d) Circular Linked List

(17) ..... is used to hold the first element on stack.
a) Top
b) Next
c) Bottom
d) Previous

(18) Deletion operation in stack is called
a) Pop
b) Push
c) Insert
d) Delete

(19) How many end/s are used in stack data structure?
a) 1
b) 2
c) 3
d) 4

(20) The value of top (tos) when stack is empty
a) 0
b) -1
c) 1
d) 2

(21) Which of the following is used to calculate postfix expression?
a) Stack
b) Linked list
c) Queue
d) Graph

(22) The prefix representation of A*B+C
a) *A+BC
b) +A*BC
c) +*ABC
d) *AB+C

(23) The postfix representation of A*B+C
a) AB*C+
b) A*B+C
c) ABC*+
d) BC+A*

(24) Which of the following is used to calculate prefix expression?
a) Stack
b) Linked list
c) Queue
d) Tree

(25) Deletion in queue is done through ..... end.

a) front
b) rear
c) back
d) last

(26) The value of front is incremented by 1 when data element is

a) Inserted
b) Searched
c) Deleted
d) None of these

(27) Dequeue is a process of

a) Insertion
b) Searching
c) Deletion
d) Traversal

(28) Relationship between rear and front to find the number of elements of queue

a) Rear – front +1
b) Rear – front -1
c) Rear + front +1
d) Rear - front -1

(29) LIFO mean

a) Last in first out
b) Last input first out
c) Last in first output
d) Last input first output

(30) In circular queue, the value of rear is ..... where MAX is the size of queue.

a) Rear = rear +1
b) Rear = (rear +1) % MAX
c) Rear = rear - 1
d) Rear = (rear -1) % MAX

(31) Which of the following is/are way/s of storing data?

a) Stack
b) Linked list
c) Queue
d) All of above

(32) Which of the following is a linear data structure?

a) Array
b) Linked list
c) Stack
d) All of these

(33) Which of the following is a non linear data structure?

a) Array
b) Linked list
c) Stack
d) Tree

(34) Which of the following is used to define a node in Linked list?

a) Structure
b) Variable
c) Array
d) All of these

(35) The postfix expression of a+b*c-d

a) ab*c + –d
b) ab + c * d –
c) – + a * bcd
d) abc* + d –

(36) Node in Linked list is created at .....

a) Compile time
b) Statically
c) Runtime
d) Any time

(37) The value of postfix expression 3574-2^*+ is

a) 48
b) 50
c) 45
d) 41

(38) The address of the first element of an array is generally called

a) First address
b) Base address
c) Start address
d) Last address

(39) Which of the following is best suited for reversing?

a) Stack
b) Linked list
c) Queue
d) List

(40) The numbers of elements of a 2D array can be obtained using

a) Row * Column
b) Row - Column
c) Row + Column
d) Row / Column

(41) When the start pointer of Linked list is Null, it is called as

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

(42) Which of the following does not related to queue?

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

(43) The elements a, b, d, c, e are inserted in queue, the order of deletion is

a) abcde
b) adbce
c) abdce
d) abedc

(44) Pointer is used in singly Linked list to point to the .....

a) Null
b) Next node
c) Start of the node
d) Last node

(45) Traversing both way is possible in

a) Singly Linked list
b) Circular Linked list
c) Doubly Linked list
d) All of these

(46) Which of the following is correct evaluation of postfix of D + (E * F)

a) EFD*+
b) EF*D+
c) DEF*+
d) DEF+*

(47) Output restricted queue is a type of which queue?

a) Priority queue
b) Double ended queue
c) Circular queue
d) Simple queue

(48) Deletion of an element is performed first in priority queue having

a) High priority
b) Same priority
c) Low priority
d) No priority

(49) Insertion operation, if the capacity of stack is full gives

a) Stack overflow
b) Stack no flow
c) Stack underflow
d) None of these

(50) Students standing in a line, roll number wise is an example of

a) Stack
b) Graph
c) Queue
d) Tree

(51) How many elements are present in the stack if the variable Top pointing towards the topmost element -

a) 0
b) Top +1
c) Top -1
d) 1

(52) First node in Linked list is also called

a) head
b) initiate
c) tail
d) end

(53) Sorting means .....data elements in some order.

a) arranging
b) inserting
c) deleting
d) searching

(54) Which of the following sorting work best on almost sorted array?

a) Insertion
b) Merge
c) Quick
d) Heap

(55) ..... data structure is useful in implementation of quick sort.

a) BST
b) Stack
c) List
d) Queue

(56) The number of iterations in selection sort (ascending order) of an array = {3,4,5,2,1} are

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

(57) The number of passes in bubble sort (ascending order) of an array = {3,4,5,2,1} are
a) 3
b) 2
c) 4
d) 5

(58) Quick sort follows
a) Divide & conquer
b) Brute force technique
c) Greedy algorithm
d) Dynamic programming

(59) In max heap structure, greatest key is always associated with an element in the
a) Leaf node
b) First node of left sub tree
c) Root node
d) First node of right sub tree

(60) Merge sort works on the principle of
a) Divide & conquer
b) Brute force technique
c) Greedy algorithm
d) Dynamic programming

(61) Quick sort divide the complete array into ..... sub arrays.
a) 2
b) 3
c) 4
d) 5

(62) The sorting (ascending order) in which the last element is sorted in first pass is
a) Bubble sort
b) Insertion sort
c) Heap sort
d) Quick sort

(63) The sorting (ascending order) in which the minimum value element is selected and placed at the beginning is
a) Bubble sort
b) Insertion sort
c) Selection sort
d) Quick sort

(64) The sorting where an element is selected as a pivot and the array is partitioned based on it is
a) Bubble sort
b) Insertion sort
c) Selection sort
d) Quick sort

(65) Searching in a linear manner is called
a) Linear searching
b) Binary searching
c) Line searching
d) Non linear searching

(66) In ..... search, elements are checked from the beginning to end of the list.
a) Linear
b) Straight
c) Binary
d) Non linear

(67) The fastest way to store and search data is
a) Sorting
b) Hashing
c) Both (a) & (b)
d) Indexing

(68) Function used in hashing data structure is called
a) Linear function
b) Hash function
c) Non linear function
d) None of these

(69) Which of the following hash function is used in division method?
a) $h(k) = k/m$
b) $h(k) = m/k$
c) $h(k) = k \bmod m$
d) $h(k) = m \bmod k$

(70) The use of hashing is to search that takes
a) O(1) time
b) O(n) time
c) O(log n) time
d) O(n log n) time