

# Online Examinations (Even Sem/Part-I/Part-II Examinations 2020 - 2021)

Course Name - --Data Structure and Algorithm

Course Code - BCA202

\* You can submit the form ONLY ONCE.

\* Fill the following information for further process.

\* Required

1. Email \*

---

2. Name of the Student \*

---

3. Enter Full Student Code \*

---

4. Enter Roll No \*

---

5. Enter Registration No \*

---

6. Enter Course Code \*

---

7. Enter Course Name \*

---

8. \*

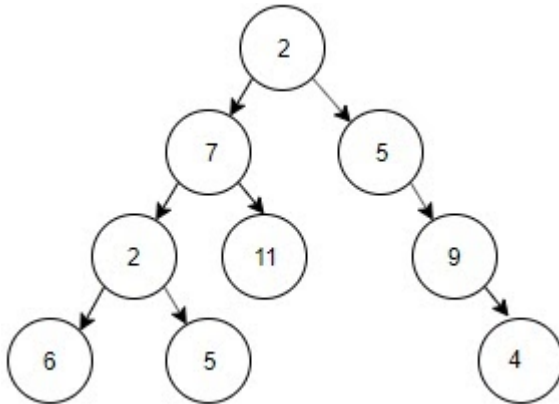
Mark only one oval.

- Diploma in Pharmacy
- Bachelor of Pharmacy
- B.TECH.(CSE)
- B.TECH.(ECE)
- BCA
- B.SC.(CS)
- B.SC.(BT)
- B.SC.(ANCS)
- B.SC.(HN)
- B.Sc.(MM)
- B.A.(MW)
- BBA
- [B.COM](#)
- B.A.(JMC)
- BBA(HM)
- BBA(LLB)
- B.OPTOMETRY
- B.SC.(MB)
- B.SC.(MLT)
- B.SC.(MRIT)
- B.SC.(PA)
- LLB
- [B.SC\(IT\)-AI](#)
- B.SC.(MSJ)
- Bachelor of Physiotherapy
- B.SC.(AM)
- Dip.CSE
- Dip.ECE
- [DIP.EE](#)
- DIP.CE

- [DIP.ME](#)
- PGDHM
- MBA
- M.SC.(BT)
- M.TECH(CSE)
- LLM
- M.A.(JMC)
- M.A.(ENG)
- M.SC.(MATH)
- M.SC.(MB)
- MCA
- M.SC.(MSJ)
- M.SC.(AM)
- M.SC.CS)
- M.SC.(ANCS)
- M.SC.(MM)
- B.A.(Eng)

Answer all the questions. Each question carry one mark.

9. 1. For the tree , write the pre-order traversal.



Mark only one oval.

- 2,7,2,6,5,11,5,9,4
- 2,5,11,6,7,4,9,5,2
- 2,7,5,2,6,9,5,11,4
- 2,7,5,6,11,2,5,4,9

10. 2. Which of these best describes an array?

Mark only one oval.

- A data structure that shows a hierarchical behaviour
- Container of objects of similar types
- Arrays are immutable once initialised
- Array is not a data structure

11. 3. Which linear structure has a provision of Last-In-First-Out (LIFO) mechanism for its elements?

*Mark only one oval.*

- Stack
- Queue
- Stack & Queue
- none

12. 4. The postfix form of  $A*B+C/D$  is

*Mark only one oval.*

- $*AB/CD+$
- $AB*CD/+$
- $A*BC+/D$
- $ABCD+/*$

13. 50. Which type of linked list contains a pointer to the next node in the sequence?

*Mark only one oval.*

- Singly Linked List
- Circular Linked List
- Doubly Linked List
- All of these.

14. 6. The best data structure to evaluate an arithmetic expression (in postfix form) is

*Mark only one oval.*

- Queue
- Stack
- Tree
- linked list

15. 7. A normal queue, if implemented using an array of size MAX\_SIZE, gets full when

*Mark only one oval.*

- Rear = MAX\_SIZE - 1
- Front = (rear + 1) mod MAX\_SIZE
- Front = rear + 1
- Rear = front

16. 8. Which expressions are also regarded as ' Reverse Polish Notations '?

*Mark only one oval.*

- Prefix
- Postfix
- Infix
- None

17. 9. The given array is  $arr = \{1,2,4,3\}$ . Bubble sort is used to sort the array elements. How many iterations will be done to sort the array?

*Mark only one oval.*

- 4
- 2
- 1
- 0

18. 10. The given array is  $arr = \{3,4,5,2,1\}$ . The number of iterations in bubble sort and selection sort respectively are,

*Mark only one oval.*

- 5 and 4
- 4 and 5
- 2 and 4
- 2 and 5

19. 11. Which search is better?

*Mark only one oval.*

- Linear
- Binary
- both Linear & Binary
- None



20. 12. 6, 8, 4, 3, and 1 are inserted into a data structure in that order. An item is deleted using only a basic data structure operation. If the deleted item is a 1, the data structure cannot be a ?

*Mark only one oval.*

- Queue
- Tree
- Stack
- None

21. 13. If the array is already sorted, which of these algorithms will exhibit the best performance

*Mark only one oval.*

- Merge sort
- Bubble sort
- Insertion sort
- None

22. 14. The retrieval of items in a stack is ..... operation.

*Mark only one oval.*

- Push
- Pop
- Retrieval
- access

23. 15. Which is the pointer associated with the stack?

*Mark only one oval.*

- FIRST
- FRONT
- TOP
- REAR

24. 16. The elements are removed from a stack in ..... order.

*Mark only one oval.*

- Reverse
- Hierarchical
- Alternative
- Sequential

25. 17. Which of the following is an application of stack?

*Mark only one oval.*

- finding factorial
- tower of Hanoi
- infix to postfix
- All of these.

26. 18. Before inserting into the stack one must check the condition .....

*Mark only one oval.*

- Overflow
- Underflow
- Maximum elements
- Existing elements

27. 19. .... is a collection of elements such that each element has been assigned a processing priority.

*Mark only one oval.*

- Priority queue
- Procedure queue
- Main queue
- Interrupt queue

28. 20. In ....., search starts at the beginning of the list and checks every element in the list.

*Mark only one oval.*

- Linear search
- Binary search
- Hash Search
- Binary Tree search

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

*Mark only one oval.*

- Sorting
- Merging
- Inserting
- traversal

30. 22. To insert a new node in the linked list free node will be available in .....

*Mark only one oval.*

- Available list
- Avail list
- Free node list
- Memory space list

31. 23. A doubly linked list is also called as .....

*Mark only one oval.*

- linked list
- one way chain
- two way chain
- right link

32. 24. What is a full binary tree?

*Mark only one oval.*

- Each node has exactly zero or two children
- Each node has exactly two children
- All the leaves are at the same level
- Each node has exactly one or two children

33. 25. What does 'stack underflow' refer to?

*Mark only one oval.*

- accessing item from an undefined stack
- adding items to a full stack
- removing items from an empty stack
- index out of bounds exception

34. 26. To obtain a prefix expression, which of the tree traversals is used?

*Mark only one oval.*

- Level-order traversal
- Pre-order traversal
- Post-order traversal
- In-order traversal

35. 27. Which type of traversal of binary search tree outputs the value in sorted order?

*Mark only one oval.*

- Pre-order
- In-order
- Post-order
- None

36. 28. The process of accessing data stored in a serial access memory is similar to manipulating data on a

*Mark only one oval.*

- heap
- queue
- stack
- binary tree

37. 29. Which of the following data structures is linear data structure?

*Mark only one oval.*

- Trees
- Graphs
- Arrays
- None

38. 30. A BST is traversed in the following order recursively: Right, root, left. The output sequence will be in

*Mark only one oval.*

- Ascending order
- Descending order
- Bitonic sequence
- No specific order

39. 31. The data structure required to check whether an expression contains balanced parenthesis is?

*Mark only one oval.*

- Stack
- Queue
- Array
- Tree

40. 32. Which data structure is needed to convert infix notation to postfix notation?

*Mark only one oval.*

- Branch
- Tree
- Queue
- Stack

41. 33. In a circular linked list

*Mark only one oval.*

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

42. 34. The best average behavior is shown by

*Mark only one oval.*

- Quick Sort
- Merge Sort
- Insertion Sort
- Heap Sort

43. 35. Which of the following ways is a pre-order traversal?

*Mark only one oval.*

- Root->left subtree-> right subtree
- Root->right subtree-> left sub tree
- right subtree-> left subtree->Root
- left subtree-> right subtree->Root



44. 36. Degree of a leaf node is

*Mark only one oval.*

0

1

2

3

45. 37. What are the disadvantages of arrays?

*Mark only one oval.*

Data structure like queue or stack cannot be implemented

There are chances of wastage of memory space if elements inserted in an array are lesser than the allocated size

Index value of an array can be negative

Elements are sequentially accessed

46. 38. Which of these is not an application of linked lists?

*Mark only one oval.*

To implement file systems

For separate chaining in hash-tables

To implement non-binary trees

Random Access of elements

47. 39. When a top-down approach of dynamic programming is applied to a problem, it usually \_\_\_\_\_

*Mark only one oval.*

- Decreases both, the time complexity and the space complexity
- Decreases the time complexity and increases the space complexity
- Increases the time complexity and decreases the space complexity
- Increases both, the time complexity and the space complexity

48. 40. Which of the following problems is NOT solved using dynamic programming?

*Mark only one oval.*

- 0/1 knapsack problem
- Matrix chain multiplication problem
- Edit distance problem
- Fractional knapsack problem

49. 41. Complexity of the recurrence relation  $T(n)=8T(n/2)+n^2$  is

*Mark only one oval.*

- $O(n)$
- $O(n^2)$
- $O(n^3)$
- none of these

50. 42. Which of the following algorithm solves the All-pair shortest path algorithm

*Mark only one oval.*

- dijkstra's
- floydwarshall
- bellman ford
- none of these

51. 43. Which algorithm is able to detect negative edge cycle

*Mark only one oval.*

- Dijkstra's
- Floyd warshall
- Bellman ford
- None of these

52. 44. How many fundamental solutions are there for the eight queen puzzle?

*Mark only one oval.*

- 92
- 10
- 11
- 12

53. 45. In how many directions do queens attack each other?

*Mark only one oval.*

- 1
- 2
- 3
- 4

54. 46. What is the objective of the tower of hanoi puzzle?

*Mark only one oval.*

- To move all disks to some other rod by following rules
- To divide the disks equally among the three rods by following rules
- To move all disks to some other rod in random order
- To divide the disks equally among three rods in random order

55. 47. The time complexity of the solution tower of hanoi problem using recursion is \_\_\_\_\_

*Mark only one oval.*

- $O(n^2)$
- $O(2^n)$
- $O(n \log n)$
- $O(n)$

56. 48. Recursive solution of the tower of hanoi problem is an example of which of the following algorithms?

*Mark only one oval.*

- Dynamic programming
- Backtracking
- Greedy algorithm
- Divide and conquer

57. 49. What is the condition for proper coloring of a graph?

*Mark only one oval.*

- two vertices having a common edge should not have same color
- two vertices having a common edge should always have same color
- all vertices should have a different color
- all vertices should have same color

58. 50. The number of colors used by a proper coloring graph is called?

*Mark only one oval.*

- k coloring graph
- x coloring graph
- m coloring graph
- n coloring graph

59. 51. Backtracking algorithm is implemented by constructing a tree of choices called as?

*Mark only one oval.*

- State-space tree
- State-chart tree
- Node tree
- Backtracking tree

60. 52. Time complexity of prim's algorithm is

*Mark only one oval.*

- $O(V^2)$
- $O(\log V)$
- $O(E^2)$
- none of these

61. 53. A node is said to be \_\_\_\_\_ if it has a possibility of reaching a complete solution.

*Mark only one oval.*

- Non-promising
- Promising
- Succeeding
- Preceding

62. 54. BFS traversal uses

*Mark only one oval.*

- stack
- queue
- both a and b
- None of these

63. 55.  $T(n) = c + T(n-1)$ , with  $T(1) = 1$ . Time complexity is

*Mark only one oval.*

- $O(n)$
- $O(n^2)$
- $O(n^3)$
- None of these

64. 56. \_\_\_\_\_ enumerates a list of promising nodes that could be computed to give the possible solutions of a given problem.

*Mark only one oval.*

- Exhaustive search
- Brute force
- Backtracking
- Divide and conquer

65. 57. The problem of finding a subset of positive integers whose sum is equal to a given positive integer is called as?

*Mark only one oval.*

- n- queen problem
- subset sum problem
- knapsack problem
- Hamiltonian circuit problem

66. 58. The problem of placing n queens in a chessboard such that no two queens attack each other is called as?

*Mark only one oval.*

- n-queen problem
- eight queens puzzle
- four queens puzzle
- 1-queen problem

67. 59. The complexity of Floyd warshall algorithm is

*Mark only one oval.*

- $O(V^2)$
- $O(V^3)$
- $O(E^2)$
- $O(E^3)$



68. 60. Let a chain of matrices are  $A_1A_2A_3A_4A_5=(2,3,4,5,6,7)$ . Total number of parenthesization possible is

*Mark only one oval.*

- 25
- 41
- 50
- None of these

69. 61. BFS of a graph  $G=(V,E)$  has running time

*Mark only one oval.*

- $O(|V|+|E|)$
- $O(|E|)$
- $O(|V|)$
- None of these

70. 62. How many possible solutions exist for an 8-queen problem?

*Mark only one oval.*

- 100
- 98
- 99
- 92

71. 63. Of the following given options, which one of the following is a correct option that provides an optimal solution for the 4-queens problem?

*Mark only one oval.*

(3,1,4,2)

(2,3,1,4)

(4,3,2,1)

(4,2,3,1)

72. 64. Which of the following methods can be used to solve n-queen's problem?

*Mark only one oval.*

greedy algorithm

divide and conquer

iterative improvement

backtracking

73. 65. Where is the n-queens problem implemented?

*Mark only one oval.*

carom

chess

ludo

cards

74. 66. Placing n-queens so that no two queens attack each other is called?

*Mark only one oval.*

- n-queen's problem
- 8-queen's problem
- Hamiltonian circuit problem
- subset sum problem

75. 67. Given items as {value,weight} pairs  $\{(60,20),\{50,25\},\{20,5\}\}$ . The capacity of knapsack=40. Find the maximum value output assuming items to be divisible and non-divisible respectively.

*Mark only one oval.*

- 100, 80
- 110, 70
- 130, 110
- 110, 80

76. 68. Given items as {value,weight} pairs  $\{(40,20),\{30,10\},\{20,5\}\}$ . The capacity of knapsack=20. Find the maximum value output assuming items to be divisible.

*Mark only one oval.*

- 60
- 80
- 100
- 40

77. 69. Time complexity of fractional knapsack problem ( assume the elements are sorted according to the profit density) is \_\_\_\_\_

*Mark only one oval.*

- $O(n \log n)$
- $O(n)$
- $O(n^2)$
- $O(nW)$

78. 70. What is the objective of the knapsack problem?

*Mark only one oval.*

- To get maximum total value in the knapsack
- To get minimum total value in the knapsack
- To get maximum weight in the knapsack
- To get minimum weight in the knapsack

---

This content is neither created nor endorsed by Google.

Google Forms