**Subject Code: 17MCA1C5**

**JAMAL MOHAMED COLLEGE (Autonomous)**

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**Objective Type Questions**

**Department of Computer Science**

**Semester: I : UG / PG: PG-MCA**

**Title of the Paper: CORE – V DATA STRUCTURE AND**

**ALGORITHMS**

**UNIT – I**

1. Which is a set of objects together with a set of operations.
2. STACK b) Class c) Record d) ADT
3. Which is consists of a series of nodes.
4. List b) Object c) Linked list d) Table
5. Which is implemented as an insertion into the front of a linked List.
6. POP b ) PUSH c) Delete d) Update
7. \_\_\_\_\_\_\_\_\_\_\_ are sometimes known as LIFO.
8. STACK b) QUEUE c) ERD d) ADT
9. Which is perform by deleting the elements at the front of the list.
10. PUSH b) Remove c) Append d) POP
11. The data structure that are also has the property is known as

\_\_\_\_\_\_\_\_\_\_\_\_.

1. List b) Record c) STACK d) Linked list
2. Which operations deletes the most recently inserted element.

A) Push b) POP c) ADD d) Remove

8. Which is deletes the elements at the start of list.

a) De-queue b) Queue c) Stack d) Class

9. Which operations performed on linked list.

a) Up-dation b) modification c) Changing d) Insertion

10. Which is a collection of data elements.

a) STACK b) QUEUE c) Linear list d) Record

11. Which is an ordered list in all insertion take place at one end.

a) Linked list b) QUEUE c) STACK d) List

12. Which is a specialized format for organizing and storing data.

a) Data structure b) Database c) Algorithm d) Data collection

13. Which is an ordered list in all insertions and deletions are made at one end.

1. QUEUE b) Linked list c) Dequeue d) STACK

14. A data structure may be sleeted or designed to store data for Purpose of

working on it with various \_\_\_\_\_\_\_\_\_\_\_\_\_.

1. Theorems b) Problems c) Algorithms d) Programs.

15. Which one is operators appear after its operands.

a) Infix expressions b) Prefix expression c) Arithmetic expression

d) Postfix expression

16. Which is no priorities also with operators.

a) Postfix expression b) Logical expression c) Relational expression

d) Linked expression

17. Which are used to keep track of function calls.

a) Linked list b) Files c) Records d) Stacks

18. The time to evaluate a postfix expression is O(N).

a) O(N log) b) O(2 log n) c) O(N) d) O(2N)

19. Which is equivalent to an insert.

a) POP b) PUSH c) Front d) Rear

20. Radix sort is sometimes known as \_\_\_\_\_\_\_\_\_\_\_.

a) Card sort b) Quick sort c) Merge sort d) Heap sort.

**UNIT - II**

21. A non linear data structure called a \_\_\_\_\_\_\_\_\_\_.

1. B-tree b) Sub tree c) Binary tree d) Tree

22. Which is mainly used to represent data containing a hierarchical

Relationship between elements.

1. STACK b) Dataset c) Tree d) Database

23. A binary tree T is defined as a finite set of elements.

1. Information b) elements c) Data d) Records

24. Each node in a binary tree T is assigned a \_\_\_\_\_\_\_\_\_\_\_\_\_

1. Lower level b) Higher level c) Ex stream level d) Middle level

25. The nodes with no successors are called \_\_\_\_\_\_\_\_\_\_\_\_.

1. Sub node b) Parent node c) Child node d) Terminal node
2. A terminal node is called \_\_\_\_\_\_\_\_.
3. Branch b) Sub tree c) Leaf d) Root
4. Which is the nodes that dot not have any children.
5. Parent b) Leaf node c) Sub lings d) Root

28. The depth of a tree T is \_\_\_\_\_\_\_\_\_\_\_\_\_ number of nodes in a break.

1. Maximum b) Minimum c) many more d) Very small

29. A binary tree where all the nodes will have either o or two children.

1. Binary b) Skew tree c) AVL tree d) Strictly binary tree

30. The special pointers are called \_\_\_\_\_\_\_\_.

1. Binary b) Linked list c) Threads d) Strictly B-tree.

31. Binary trees with pointers are called \_\_\_\_\_\_\_\_\_.

1. Sub tree b) Threaded tree c) Extend binary tree d) AVL tree

32. An efficient way of maintaining tree in memory called\_\_\_\_\_\_\_\_\_\_\_\_  
 a) Sequential b) unordered list c) Linked list d) Ordered list

33. Consider a binary tree T, it will be maintained in memory by means

Of \_\_\_\_\_\_\_\_\_\_\_ representation.

1. Sequential b) STACK c) Storage d) Linked list

34. Which structure enables one to search for and find an element with an

Average running time f(n) = O(log2 N).

1. B+ tree b) Threaded tree c) Binary search tree d) Extend B-tree

35. An empty binary tree is an \_\_\_\_\_\_\_\_ tree.

1. Threaded b) AVL c) Binary d) Extended binary tree

36. Which tree is defined to be non-empty finite set T of elements.

1. General tree b) B-tree c) AVL tree d) Sub tree

37. Which code assigns to each external node the sequence of bits from the

Root to the node.

1. Optimal b) Binary c) Gray d) Huffman

38. Traversing a binary tree first root and then left and right sub trees

Called \_\_\_\_\_\_\_\_\_\_ traversal.

1. In order b) Post order c) Preorder d) Reverse order

39. If a binary tree traversed in in-order then numbers of the node an printed

In \_\_\_\_\_\_\_\_\_\_\_\_\_ order.

1. Descending b) Ascending c) Randomly d) Discrete

40. Given infix expression is (A+B)\*(C-B) its postfix expression will be

1. AB+CD-\* b) \*+AB-CD c) +AB\*-CD d) ABCD-+\*

**UNIT - III**

41. Which is to compare a search key element with middle element of

Array a[m].

1. Linear search b) Block search c) Dynamic search d) Block search

42. Which algorithm is used to divide the array into sub arrays.

a) Radix sort b) Heap sort c) Quick sort d) Selection sort

43. The selection of proper \_\_\_\_\_\_\_ element to improve the efficiency of

An algorithm.

1. Mean b) Pivot c) Mode d) Centre

44. Which is required less number of key comparison than sequential search.

a) Binary search b) Linear search c) Breadth-first search d) Depth search

45. A pivot element to partitions unsorted list is used in\_\_\_\_\_\_\_\_\_.

a) merge sort b) Insertion sort c) Selection sort d) Quick sort

46. Which of the method for solving any such recurrence relation is called the

\_\_\_\_\_\_\_\_\_ method.

a) Control abstraction b) Divide-and-conquer c) Substitution d) Recursively

47. Which of the below mentioned sort algorithm are not stable.

a) Insertion sort b) Heap sort c) selection sort d) Merge sort

48. Which of the following algorithm does not divide the list.

a) Linear search b) Binary search c) Merge sort d) Radix sort

49. Time required to merge two sorted lists of size m and n is \_\_\_\_\_\_\_

a) O(m/n) b) O(m log n) c) O(n log m) d) O(m+n)

50. Quick sort algorithm is an example of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

a) Dynamic programming b) Linear search c) Divide-and-conquer d) Greedy

51. Quick sort running time depends on the selection of \_\_\_\_\_\_\_\_\_\_.

a) Sequence of values b) Pivot elements c) Size of array d) Random value

52. Which one of the below is not divide and conquer approach.

a) Merge sort b) Shell sort c) Insertion sort d) Heap sort

53. Which of the following searching techniques do not require the data to be

In sorted form.

1. Binary search b) Extrapolation search c) Interpolation search d) Linear search

54. Which of the search below given sorting techniques has highest best-case runtime

Complexity.

1. Quick sort b) Bubble sort c) Selection sort d) Exchange sort

55. The following sorting algorithms maintain two sub lists on sorted and one to

Be sorted.

1. Selection sort b) Radix sort c) Heap sort d) merge sort

56. Which of the following is not the internal sort.

a) merge sort b) Heap sort c) Bubble sort d) shell sort

57. If the number of records to be sorted is small, then \_\_\_\_\_\_\_\_\_\_ sorting can

Be efficient.

1. Quick b) Heap c) Bubble d) Selection

58. Binary search algorithm can not be applied to \_\_\_\_\_\_\_\_\_\_\_\_\_.

a) sorted binary trees b) linear array c) sorted linked list d) pointer array

59. The complexity of merge sort is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

a) O(n2) b) O(n logn) c) O(logn) d) O(n)

60. Which of the following sorting algorithm is of divide and conquer type.

a) merge sort b) Bubble sort c) Insertion sort d) selection sort

UNIT - IV

61. Every set of Xi S that satisfies the constraints is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Normal solution b) Actual solution c) Possible solution

d) Feasible solution.

62. Which method loads containers in increasing order of their weight.

a) Backtracking b) ivied-and-conquer c) Greedy d) Dynamic programming

63. In a feasible assignment each machine works on at most \_\_\_\_\_\_\_\_ task

At any time.

1. Two b) One c) Many d) More

64. The knapsack problem calls for selecting a \_\_\_\_\_\_\_\_\_\_\_\_ of the objects.

a) Sub set b) data set c) Set Record set

65. Which algorithm is used to construct a minimum spanning tree of a weighted

Connected graph.

1. Breadth-first b) Depth-first c) Backtracking d) Prim’s

66. A \_\_\_\_\_\_\_\_ of a connected graph is its connected acyclic sub graph that

Contains all vertices of the graph.

1. Binary tree b) B-tree c) Spanning tree d) AVL tree

67) Which of the following a re the operations performed by kruskal’s

Algorithm.

1. – Sort the edges of G increasing order by length.
2. \_ Keep a sub graph S of G initially .
3. (ii) and (iii) only b) (i) and (ii) only c) (i) and (iii) only d) All (i),(ii) and (iii)

68.) Rather than build a sub graph on edge at a time \_\_\_\_\_\_\_\_ a tree one vertex at a

Time.

1. Prim’s algorithm b) Kruskal’s algorithm c) Dijkstra d) Bellman ford algorithm

69.) The result of Prim’s algorithm is a total time bound of \_\_\_\_\_\_\_\_\_\_

a) O(n log n) b) O(mn) c) O(m log n) d) O(n logn+1)

70. Dijkstra’s algorithm is also called the \_\_\_\_\_\_\_\_\_\_\_\_\_shortest path problem.

a) Multiple source b) Single destination c) Single source d) multiple destination

71. Greedy Job scheduling with deadlines algorithms complexity is defined as

a) O(n log n) b) O(N) c) O(n2 log n) d) O( n logn+1)

72. Prim’s algorithm is based on \_\_\_\_\_\_\_\_\_\_\_\_ method.

a) Greedy method b) Branch-and-bound c) Divide and conquer

d) Dynamic programming

73. Which is optimal value in the case Job sequence problem.

Item : 1 2 3 4 5 6 7 Profit : 35 20 18 16 30 Deadline : 1 3 4 3 2 1 2

1. (2,3,1,7) b) (1, 2, 3, 4) c) ( 1,5,6,4) d) ( 7,6,4,3)

74. The files x1,x2,x3 are 3 files of length 30,20,10 records each what is the optimal

Merge pattern value.

a) 110 b) 60 c) 90 d) 50

75. The optimal merge pattern is based on \_\_\_\_\_\_\_\_\_\_\_ method.

a) Branch and bound b) Greedy method c) Backtracking d) Randomized

76. \_\_\_\_\_\_\_\_ is know as a greedy algorithm, because it choose at each step the

Cheapest edge to add to sub graphs.

1. Kruskal’s algorithm b) Prim’s algorithm c) DIjkstra algorithm d) Bellman ford

77. The problem is to determine the shortest paths from Vo to all the remaining

------------vertices of G.

1. Edges b) Nodes c) Element d) Vertices

78. The \_\_\_\_\_\_\_\_\_ merge patterns can be represented by binary merge tree.

a) Multi-way b) Single-way c) Two-way d) Normal-way

79. Which method simple requires us to store programs in non decreasing order

Of their lengths.

1. Dynamic programming b) Greedy c) Divide-and-conquer d) Backtracking

80) A minimal sub graph is one with the fewest number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

a) edges b) Sources c) Nodes d) Sink node

**UNIT – V**

81. Which algorithm determine problem solution by systematically searching the

Solution space for given problem.

1. Prim’s b) Kruskal’s c) Shortest path d) Backtracking

82. A state space tree for backtracking algorithm is constructed using \_\_\_\_\_\_\_\_\_  
 a) Linear search b) Binary search c) Depth first search d) Breadth first search

83. Which design strategy stops the execution when it finds the solution otherwise

Starts the problem from top.

1. Branch-and-bound b) Backtracking c) Divide-and-conquer d) Greedy

84. Which is not return optimal solution from the following methods.

1. Backtracking b) Bin packing c) Travelling salesman d) Randomized

85. 0/1 knapsack is based on \_\_\_\_\_\_\_\_\_\_\_\_\_\_ method.

1. Static programming b) Linear programming c) Semantic d) Dynamic

86. \_\_\_\_\_\_\_\_\_\_\_\_ is an algorithm design method that can be used when the

Solution to a sequence of decision.

1. Assignment problem b) Knapsack problem c) Dynamic d) N-Queens problem

87. We consider a backtracking solution using the \_\_\_\_\_\_\_\_\_size strategy.

1. Static tuple b) Fixed tuple c) Dynamic tuple d) Constant tuple.

88. The tree organization of the solution space is referred to as the \_\_\_\_\_\_\_\_\_ tree.

1. Static space b) Object space c) Image space d) tensor space.

89. Each node in this tree defines a \_\_\_\_\_\_\_\_\_\_ state.

1. Answer b) Space c) Root d) Problem

90. Tree organization that are problem instance dependent are called \_\_\_\_\_\_ trees.

1. Fixed space b) Static c) Dynamic d) State space

91. Each set Vi defines a \_\_\_\_\_\_\_\_\_\_ in the Graph.

1. Start b) Stage c) Source d) Phase

92. A minimum –cost source to sink path is indicated by the \_\_\_\_\_\_\_\_\_ edges.

1. Broken b) Doted c) Bold d) Thin
2. The multistage graph problem is to find a \_\_\_\_\_ path from source to sink.
3. Maximum cost b) Cost benefit c) Net cost d) Minimum cost
4. The all pairs shortest=path problem is to determine a matrix A such that

A(I,j) is the length of a \_\_\_\_\_\_\_\_\_\_path from I to j.

1. Minimum b) Smaller c) Shortest d) Very minimum
2. This is necessary to ensure that shortest paths consist of a \_\_\_\_\_\_\_ number of

Edges.

1. Infinite b) Finite c) Final d) Fixed

96. Every \_\_\_\_\_\_\_ node represents a point where a successful search may terminate.

1. Internal b) External c) Outside d) Inside

97. We may expect different binary search trees for the same identifier set to have

Different \_\_\_\_\_\_\_\_\_\_\_\_\_ characteristics.

1. Throughput b) Reliability c) Response time d) Performance

98. Let fi(y) be the value of an \_\_\_\_\_\_\_\_\_\_\_solution to KNAP(i,j,y).

1. State space b) Answer space c) Optimal d) Minimum space

99. A solution to the Knapsack problem can be obtained by making a sequence

\_\_\_\_\_\_\_\_\_\_\_\_\_ on the variable x1,x2,x3,…..xn.

1. Criteria b) Decision c) Condition d) Constraints

100. Which schedule is processor of a task on any processor is terminated until the

Task is complete.

1. Non-Pre-emptive b) Shortest Job first c) Pre-emptive d) Round Robin

UNIT – I ( DSA ) ANSWERS

1. a) ADT
2. c)Linked List
3. b)Push
4. a)STACK
5. d)POP
6. c)STACK
7. b)POP
8. a)De-queue
9. d) Insertion
10. c)Linear List
11. b) Queue
12. a) Data Structure
13. d)STACK
14. c)Algorithm
15. b)Prefix expression
16. a)Postfix expression
17. d)Stacks
18. c)O(N)
19. b)PUSH
20. a)Card Sort

UNIT – II

21. d)Tree

22. c)Tree

23. b)elements

24. a)Level number

25. d)Terminal nodes

26. c)Leaf

27. b)Leaf node

28. a)Maximum

29. d)Strictly Binary tree

30. c)Thread

31. b)Threaded trees

32. a)Sequential

33. d)Linked

34. c)Binary Search Tree

35. b)AVL

36. a)General tree

37. d)Huffman

38. d)Pre-order

39. b)Ascending

40. a)AB+CD-\*

UNIT – III

41. d) Binary Search

42. c)Quick sort

43. b)Pivot

44. a)Binary search

45. d)Quick sort

46. b)Substitution

47. c) Selection sort

48. a)Linear search

49. d)O(m+n)

50. c)Divide-and-Conquer

51. b)Pivot element

52. a)Merge sort

53. d)Linear search

54. c)Selection sort

55. a)Selection

56. a)Merge sort

57.d)Selection

58.c)Sorted linked list

59. b)O(n log n)

60.a)Merge sort

UNIT – IV

61. d)feasible solution

62. c)Greedy

63. b)One

64. a)Subset

65. d)Prim’s

66. c)Spanning tree

67.b) (i)and (ii) only

68. a)Prim’s algorithm

69.d)O(n+n log n)

70. c)Single source

71. b)O(N)

72. a)Greedy method

73.d) (7,6,4,2,3)

74. c)90

75. 75. b)Greedy method

76. a)Kruskal’s algorithm

77. d)Vertices

78. c)Two-way

79. b)Greedy

80. a)Edges

UNIT – V

81. d)Backtracking

82. c)Depth first search

83. b)Backtracking

84. a)Backtracking

85. d)Dynamic program

86. c)Dynamic program

87. b)Fixed tuple

88. a)State space

89. d)Problem

90. c)Dynamic

91. b)Stage

92. a)Broken

93. d)Minimum cost

94. c)Shortest

95. b)Finite

96. a)Internal

97. d)Performance

98. c)Optimal

99. b)Decision

100. a)Non-Pre-emptive

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