

19U332S

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Name:

Reg. No.....

THIRD SEMESTER B.C.A. DEGREE EXAMINATION, NOVEMBER 2020

(CUCBCSS-UG)

CC17U BCA3 B04 - DATA STRUCTURES USING C

(Computer Applications - Core Course)

(2017, 2018 Admissions – Supplementary/Improvement)

Time: Three Hours

Maximum: 80 Marks

PART A

Answer *all* questions. Each question carries 1 mark.

1. _____ method check if stack is full.
2. Quick sort algorithm follows _____ programming approach.
3. A procedure that calls itself is called _____
4. Prefix notation is also known as _____
5. Best case complexity of linear search is _____
6. State true or false: Graph is a linear data structure.
7. A tree with no children is called a _____ node.
8. The postfix expression of $a+b*c+(d*e)$ is _____
9. A linked list with two links each pointing to the predecessor and successor of a node is known as _____
10. A complete graph with n vertices will have _____ number of edges.

(10 x 1 = 10 Marks)

PART B

Answer *all* questions. Each question carries 2 marks.

11. List various operations supported by a one dimensional array.
12. What are the advantages of circular linked list?
13. Define sparse matrix.
14. What is dequeue?
15. Evaluate the given postfix expression: $5\ 3\ +\ 6\ 2\ /\ * 3\ 5\ * +$
16. What is the difference between complete and full binary tree?
17. Write an algorithm for inorder traversal.
18. Name any two popular hash functions used for hashing.

(8 x 2 = 16 Marks)

PART C

Answer any *six* questions. Each question carries 4 marks.

19. Explain the analysis of algorithms.
20. Briefly discuss about the classifications of various data structures available in C.
21. Explain how PUSH and POP operations are performed on a stack.
22. Write an algorithm to insert a node in a specified location of a singly list.
23. Construct a binary search tree if the elements are inserted in the order 56 26 100 18 64 32 20 10 24 12 and explain each step.
24. Write short note on 1) spanning tree 2) adjacency matrix
25. Write a program to implement binary search.
26. Define the following terminologies: a) level b) root c) height d) degree
27. Write an algorithm for selection sort.

(6 x 4 = 24 Marks)

PART D

Answer any *three* questions. Each question carries 10 marks.

28. Write algorithms for the following:
 - a) Add new node at the beginning of Linked List
 - b) Delete a node at the end of Linked List
 - c) Linked List Traversing
29. Discuss about types of queues and its applications.
30. Write down the procedure for converting infix expression to postfix expression with an example.
31. Explain hashing and its collision resolution techniques.
32. Discuss quick sort algorithm.

(3 x 10 = 30 Marks)
