

TB173170C

Reg. No:

Name:

B. Sc. DEGREE (C.B.C.S.S) EXAMINATION, OCTOBER 2018
(2017 Admissions Regular, 2016 Admissions Supplementary/Improvement & 2015
Admissions Supplementary)
SEMESTER III - CORE COURSE (COMPUTER APPLICATIONS [TRIPLE MAIN])
CAC3B05TB – DATA STRUCTURES

Time: Three Hours

Maximum Marks: 80

PART A

I Answer all questions. Each question carries 1 mark.

1. What is merging?
2. What is FIFO data structure?
3. What is the postfix equivalent of given infix expression $(A + (B / C)) * D$
4. What is complete binary tree?
5. A binary tree has n leaf nodes. What will be the number of nodes of degree 2?
6. The maximum level of any leaf node in the tree is called -----

(6x1=6)

PART B

II Answer any seven questions. Each question carries 2 marks

7. What are the features of an efficient algorithm
8. List down any four applications of data structures?
9. What is Linear search?
10. What are the two operations of Stack?
11. Name the three fields of Doubly Linked list?
12. Define doubly circular linked list?
13. What is a Binary search tree?
14. Write a program to print the natural numbers using recursion.
15. Explain the efficiency consideration of bubble sort algorithm.
16. Explain greedy Method

(7x2=14)

PART C

III Answer any five questions. Each question carries 6 marks

17. Write a program implement Linear sort technique. Illustrate with an example.
18. Discuss different types of arrays . Write a program to print first diagonal of a 3*3 matrix.
19. (a) State & explain the algorithm to perform Bubble Sort.
(b) Write a Program in C to create an empty stack and to push an element.

20. What is dynamic memory allocation? Briefly explain its functions .
21. Write an algorithm for insertion and deletion operation in a circular queue .
22. Explain different Linked lists. Illustrate each with example.
23. Write a program to count the number of nodes in a linked list using recursion.
24. Write an algorithm to search an element in a list. Consider repetitive occurrences of that element and display all the positions and number of occurrences.

(5x6=30)

PART D

IV Answer any two questions. Each question carries 15 marks.

25. Explain the procedure of bubble sort with an example? Discuss the efficiency consideration.
26. Write the steps to convert infix to postfix expression? Illustrate with an example?
27. Write notes on :-
 - a) Binary tree
 - b) Tree traversals
 - c) Tree sort
28. What is an Algorithm? Compare different algorithmic techniques. Explain each in detail with example.

(2x15=30)

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