22U337 (Pages: 2)

Name: ....

Reg.No: ....

THIRD SEMESTER B.Sc./B.C.A. DEGREE EXAMINATION, NOVEMBER 2023

(CBCSS - UG)

(Regular/Supplementary/Improvement)

CC19U BCS3 B04 / CC19U BCA3 B04 - DATA STRUCTURE USING C

(Computer Science / Computer Application - Core Course)

(2019 Admission onwards)

Time : 2.00 Hours   Maximum : 60 Marks

Credit : 3

Part A (Short answer questions)

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

1. Define data structure.

2. What is a string?

3. Explain the representation of one dimensional array in memory.

4. What is traversing?

5. What are sparse matrix?

6. Differentiate between array and linked list.

7. Differentiate between stack and queue.

8. List any three applications of trees.

9. Write the procedure to delete the child of a binary tree.

10. Construct binary search tree for 50, 15, 75, 81, 77, 30, 64, 99, 18, 3, 35.

11. What is the advantage of hashing in data structure?

12. What is the worst case time complexity of selection sort?

(Ceiling: 20 Marks)

Part B (Short essay questions - Paragraph)

Answer *all* questions. Each question carries 5 marks.

13. How to analyze the Efficiency of an Algorithm?

14. Explain doubly linked list. Explain with diagram.

15. Explain how you will delete a node from the end of a singly linked list.

16. What is the advantage of prefix expression over infix? Give the postfix expression for d/(e+f)^b*c.

17. What is Queue? Why it is known as FIFO? Write an algorithm inserting and deleting an element in queue.

18. Write a short note on tree and its application.

19. Differentiate between linear search and binary search technique. Explain with examples.

(Ceiling: 30 Marks)

Part C (Essay questions)

Answer any *one* question. The question carries 10 marks.

20. What is a circular queue? Write the algorithms for insertion and deletion operations on a circular queue.

21. Discuss the application of graph structures. What are the different methods to traverse graphs ?

(1 × 10 = 10 Marks)

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