21U336 (Pages: 2) Name: .....

Reg.No: .....

THIRD SEMESTER B.Sc./B.C.A. DEGREE EXAMINATION, NOVEMBER 2022

(CBCSS - UG)

(Regular/Supplementary/Improvement)

CC19U BCS3 B04 / CC19U BCA3 B04 - DATA STRUCTURES 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. What is the difference between data and information?
2. Define linear data structures.
3. What are the terminologies of one dimensional array?
4. What is traversing?
5. What is the advantage of sparse matrix over simple matrix?
6. What are the advantage of doubly linked list?
7. Evaluate the postfix expression 3, 1, +, 2, ^, 7, 4, -, 2, *, +, 5, -
8. Define the term Tree.
9. Write the procedure to delete the child of a binary tree?
10. What is the type of expression in which operator succeeds its operands?
11. Define the term graph.
12. What is meant by traversing a graph?

(Ceiling: 20 Marks)

Part B (Short essay questions - Paragraph)

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

13. How to find complexity of an algorithm? What is the relation between time and space complexity of an algorithm?
14. What is a single linked list? What are the various operations performed on a single linked list? Write an algorithm to insert a node after a given node in a linked list.
15. Explain how you will delete a node from the end of a singly linked list.

16. Define stack. How stack can be implemented using an array and linked list?
17. What is Queue? Why it is known as FIFO? Write an algorithm inserting and deleting an element in queue.
18. What is a binary search tree? Construct a binary search tree with 54, 23, 78, 45, 43, 12, 89, 56, 90.
19. Explain the working of quick sort algorithm.

(Ceiling: 30 Marks)

Part C (Essay questions)

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

20. What is a circular queue? Write the algorithms for insertion and deletion operations on a circular queue.
21. Explain selection sort algorithm with example. Write a C program to sort a list of numbers using selection sort.

(1 × 10 = 10 Marks)

****