

20U429

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Name:

Reg.No:

FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2022

(CBCSS - UG)

(Regular/Supplementary/Improvement)

CC19U CSC4 C04 - DATA STRUCTURES USING C

(Computer Science - Complementary Course)

(2019 Admission onwards)

Time : 2.00 Hours

Maximum : 60 Marks

Credit : 2

Part A (Short answer questions)

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

1. What is space complexity?
2. Suppose an array $A[0 \dots 15]$ is stored in a memory whose starting address is 2000. Find the address of $A[5]$. Here word is 2 byte.
3. What is traversing?
4. What do you mean by array deletion operation?
5. Define the term Circular Linked list. How it differs from an single linked list?
6. What is a doubly linked list? How it differs from circular linked list?
7. List any two applications of stack.
8. Define queue data structure.
9. What are the applications of queues?
10. What is the concepts of insertion sort?
11. Define quick sort.
12. What do you mean by divide-and-conquer method?

(Ceiling: 20 Marks)

Part B (Short essay questions - Paragraph)

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

13. Define Data Structure. What are different classifications of data structures? Explain with examples.
14. Illustrate array copy with algorithm.

15. What is sparse matrix? Explain with algorithm.
16. Explain the insertion operation in a Single linked list.
17. What is Queue? Why it is known as FIFO? Write an algorithm inserting and deleting an element in queue using linked list.
18. Write a detailed note on Binary search in data structure. Describe the algorithm of the same.
19. Explain the steps in sorting the element 8, 5, 6, 10 using selection sort.

(Ceiling: 30 Marks)

Part C (Essay questions)

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

20. What is a stack ? Explain different stack operations.
21. What is sorting ? Sort the elements 10, 8, 6, 23, 15 using Bubble sort and also write down its algorithm.

(1 × 10 = 10 Marks)
