

C 21519

(Pages : 2)

Name.....

Reg. No.....

FOURTH SEMESTER (CBCSS—UG) EXAMINATION, APRIL 2022

Computer Science

BCS4C04—DATA STRUCTURE USING C PROGRAMMING

(2019 Admission onwards)

Time : Two Hours

Maximum : 60 Marks

Section A*Answer atleast **eight** questions.**Each question carries 3 marks.**All questions can be attended.**Overall ceiling 24.*

1. What are data types ? Specify the significance of various data types.
2. Explain the non-linear data structures with example.
3. What is an algorithm ? Specify the efficiency measures of an algorithm.
4. What is linear array ? What is the significance of an array index ?
5. How to represent a one dimensional array in memory ?
6. What are the features of a linear list ?
7. What are the advantages of circular linked list ?
8. What is the basic architecture of a queue ?
9. Explain the procedure to insert an element in to a stack.
10. What are the features of a circular queue ?
11. Define the complexity measures of a sort algorithm.
12. What is the basic concept of a linear search ?

(8 × 3 = 24 marks)

Turn over

Section B

*Answer atleast **five** questions.*

Each question carries 5 marks.

All questions can be attended.

Overall ceiling 25.

13. Explain the characteristics of data structure. Also, discuss the concept of user defined data structures.
14. What are sparse matrices ? Explain the representation of sparse matrix in memory with suitable example.
15. Develop the procedure to create a singly linked list in memory.
16. Explain the implementation of a queue using arrays.
17. Discuss various applications of a stack.
18. Explain the binary search procedure with example.
19. Discuss the insertion sort procedure with supporting algorithm.

(5 × 5 = 25 marks)

Section C

*Answer any **one** question.*

Each question carries 11 marks.

20. What is stack organization ? Explain the implementation of a stack in memory using linked list.
21. What is merge sort ? Explain the procedure and also measure the efficiency.

(1 × 11 = 11 marks)