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)