D 31787   (**Pages : 2**)   Name...

                                                                 Reg. No....................................

THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION
NOVEMBER 2022

Computer Science

BCS 3B 04—DATA STRUCTURES USING C

(2019 Admission onwards)

Time : Two Hours   Maximum : 60 Marks

Section A (Short Answer Type Questions)

Answer **all** *questions, each correct answer carries a maximum of* 2 *marks.*
Ceiling 20 *marks.*

1. What are derived data types ? Example.

2. List out any three string manipulation operations ?

3. How to perform a traversal in an array ?

4. What are the limitations of a linear array representation ?

5. Explain the basic structure of a doubly linked list.

6. What is LIFO terminology ? Example.

7. What are linear queues ?

8. Specify the advantages of a circular queue.

9. Define the tree data structure with example.

10. Explain the pre-order tree traversal procedure.

11. What is undirected graph ?

12. What are hash functions ? Example.

Section B (Short Essay Type Questions)

Answer **all** *questions, each correct answer carries a maximum of* 5 *marks.*
Ceiling 30 *marks.*

13. What is a data structure ? Explain its classification with suitable examples.

14. Explain the procedure to insert an element in a specified position of an array.

Turn over

15. Develop the algorithm to delete a node from a singly linked list.

16. What are Stacks ? Explain the implementation of linear stack in memory.

17. What are various types of priority queues ? Explain.

18. How to represent an expression in a binary tree ? Also, perform a post order traversal on that tree.

19. Explain the depth first and breadth first graph traversals.

Section C (Essay Type Questions)

Answer any **one** *question, correct answer carries* 10 *marks.*

20. What is polish notation ? Explain the procedure to convert an infix expression in to post fix with the help of an operand stack.

21. Explain the quick sort algorithm and also find the efficiency measures.

(1 × 10 = 10 marks)