THIRD SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2019

(Regular/Supplementary/Improvement)

(CUCBCSS-UG)

CC17U BCS3 B04 - DATA STRUCTURES USING C

(Computer Science - Core Course)

(2017 Admission onwards)

Time: Three Hours   Maximum: 80 Marks

SECTION A

Answer *all* questions. Each question carries 1 mark.

1. Name a dynamic data structure.

2. Define sparse matrix.

3. Define the term graph.

4. Define hash table.

5. Write the postfix form of A/B*C-D.

6. What is the complexity of quick sort algorithm?

7. Linked list is a non linear data structure. True/False.

8. Define directed graph.

9. Write an application of stack **-------------**

10. Name the linked list with three nodes, one data and two pointers to successor and predecessor.

(10 x 1 = 10 Marks)

SECTION B

Answer *all* questions. Each question carries 3 marks.

11. What do you mean by a parallel array?

12. What are the features of an array?

13. What is recursion?

14. What is the difference between a tree and a graph?

15. Explain with example, how to perform evaluation of postfix expression.

(5 x 3 = 15 Marks)

SECTION C

Answer any *five* questions. Each question carries 5 marks.

16. Convert following arithmetic expressions postfix form and explain how a postfix expression is evaluated with stack.

    a) A+(B*C)/D*E/F   b) A*B-C*(D-E)/F-G/H

17. Write short note on string operations.

18. Explain exchange sorting technique with suitable example.

19. Write short note on space complexity.

20. Give a brief note on binary search tree.

21. Write a short note on priority queue.

22. Explain various hashing techniques.

23. Write short note on expression tree.

(5 x 5 = 25 Marks)

SECTION D

Answer any *three* questions. Each question carries 10 marks.

24. Compare linear searching and binary searching methods.

25. Explain various tree traversal methods.

26. Describe various stack operations. Implement them using linked list.

27. Explain insertion and deletion operations to a linear queue with suitable example and C function.

28. Demonstrate with suitable example insertion and deletion operation to a linear queue.

29. Explain with example linear linked list operations.

(3 x 10 = 30 Marks)

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