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2409

Bachelor of Computer Application

B.C.A. (II Year) Examination, 2019

DATA STRUCTURE

Paper-IV (BCA-204)

Time Allowed : Three Hours

Maximum Marks : 75

Attempt five questions in all, selecting one question from each Unit. All questions carry equal marks.

प्रत्येक इकाई में से एक प्रश्न का चयन करते हुए, कुल पाँच प्रश्नों के उत्तर दीजिए। सभी प्रश्नों के अंक समान हैं।

Unit-I

1. (*a*) What are the criteria to analyse an algorithm ? Discuss in detail. 8

   (*b*) What are algorithms and sub-algorithms ? Explain by giving examples. 7

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2. What are symptotic and asymptotic notations ? Explain different types of notations with suitable examples. 4+11

Unit-II

3. Discuss the algorithm for conversion from Infix to Postfix. Convert the following expression to Postfix using stack. https://www.uokonline.com

   A + (B * C – (D/E – F) * G) * H.

4. (*a*) Design a string manipulation algorithm for duplicating a given character string N times.6

   (*b*) Write an algorithm to print reverse of a string using recursion

UNIT-III

5. How are linked lists different from arrays ? Write an algorithm to remove duplicates from an unsorted linked list. 15

6. What is pointer ? Write an algorithm to search an element in linked list and then delete it.15

UNIT-IV

7. (*a*) What is a Tree and why is it used ? 5

   (*b*) Discuss BFS and DFS in a Binary Tree. 10

8. What is a Graph ? How are the different from Trees ? What are Adjacency Matrix and Adjacency Lists. 15

UNIT-V

9. Discuss the following sorting algorithms with example :

   (*a*) Quick Sort. 7

   (*b*) Merge Sort. 8

10. Discuss the following search algorithms with example :

    (*a*) Binary Search. 8

    (*b*) Linear Search. 7

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