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17/25-C

B.C.A. (Fourth Semester) Examination, 2017

Paper : First

Design and Analysis of Algorithm

(BCA-401)

Time : Three Hours] *[Maximum Marks : 75*

Note : Attempt **all** sections as per instructions.

Section - A

Note : Attempt **all** questions. Give answer of each question in about 50 words. 1.5×10=15

1. (i) Define algorithm.

(ii) What do you mean by sorting?

(iii) Define binary search.

(iv) What do you mean by Tree?

(v) Define Graph.

(vi) Write the Advantages of Algorithm.

(vii) Define Greedy method.

P.T.O.

(viii) What do you mean by counting?

(ix) Define chromatic number.

(x) Define binary search tree.

Section - B

Note : Attempt **all** questions. Give answer of each question in about 200 words. 8×5=40

2. What is meant by a notation? Explain θ-notation in brief.

OR

What do you mean by recurrence? Explain substitution method for solution of Recurrence Relation.

3. Explain quick sort with suitable example. Write the algorithm.

OR

Explain minimum spanning tree with suitable example.

4. What do you mean by merge sort? Explain with an example.

OR

Explain the divide and conquer method for the solution of a problem. Discuss any one specific class of problems that may be solved by this technique.

5. What do you mean by Greedy algorithm? Explain any one problem suitable for solution by Greedy method in detail.

OR

What do you mean by matrix chain multiplication? Write the algorithm of matrix chain multiplication.

6. What do you mean by Back Tracking? Write the advantages of Back tracking.

OR

What is Red-Black Tree? Write the properties of red-black Tree.

Section - C

Note : Attempt any **two questions.** Give answer of each question in about 500 words. $10 \times 2 = 20$

7. What do you mean by master method in recurrence? Explain with example.

8. Explain the Fractional knapsack problem in details.

9. What is the concept of 8 Queen problem? Explain with example.

10. Explain Travelling salesman problem in brief.

11. Write short notes on any **two** :

    (i) Bucket sort

    (ii) Graph coloring

    (iii) Binary Search Tree