Code: 9A05403

R09

B.Tech II Year II Semester (R09) Supplementary Examinations May/June 2017

DESIGN & ANALYSIS OF ALGORITHMS

(Common to CSS, IT & CSE)

Time: 3 hours Max. Marks: 70

Answer any FIVE questions

All questions carry equal marks

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1 (a) Determine the frequency counts for the following statements:

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i := 1;
while ( i ≤ n ) do
{
        x := x+1;
        i := i + 1;
}
```

(b) Explain briefly about the following: (i) Markov's inequality. (ii) Binomial distribution.

2 (a) What is degenerative tree? Write the simple UNION and FIND algorithms.

(b) Generate trees for the set {1, 2, 3, 4, ….. n) by using Weighted rule.

3 (a) Discuss briefly about the randomized quick sort.

(b) Draw the tree of calls of merge for the following set of elements.
(20, 30, 10, 40, 5, 60, 90, 45, 35, 25, 15, 55)

4 (a) Write a detailed note on greedy knapsack.

(b) Give brief description on general method of greedy.

5 (a) In how many ways, the following chain of matrices may be multiplied?

$$A \times B \times C \times D$$

$$[2\times5][5\times3][3\times6][6\times4]$$

(b) Solve the following 0/1 knapsack problem by using dynamic programming:
P = (11, 21, 31, 33) W = (2, 11, 22, 15), C = 40, n = 4

6 (a) Explain how the Hamiltonian circuit problem is solved by using the backtracking concept.

(b) Device a backtracking algorithm for m-coloring graph problem.

7 Explain the principles of:

(a) LIFO Branch and Bound.

(b) FIFO Branch and Bound.

8 Explain about decision and optimization problems with examples.

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