

Paper code: 13524

1524

B.Sc. (Computer Science) (Part 3)

Examination, 2017

Paper No. 2.3

DESIGN AND ANALYSIS OF ALGORITHM

Time: Three Hours] [Maximum Marks: 50

Note: Attempt all the five questions. All questions carry equal marks.

1. Attempt any two parts of the following:

- (a) Explain the various asymptotic notations used in algorithm design.
- (b) Explain Randomized algorithms and their advantages.
- (c) Explain binary search with their order traversal with example.

2. Attempt any two parts of the following:

- (a) Differentiate merge sort with quick sort with example.
- (b) How divide and conquer techniques applied to binary trees?
- (c) Explain worse case optimal algorithm.

3. Attempt any two parts of the following:

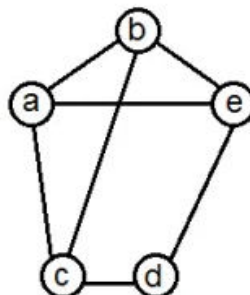
- (a) Explain about the knapsack problem using back-tracking with example.
- (b) Explain Kruskal's algorithm with proper example.
- (c) Write a note on connected components and spanning trees.

4. Attempt any two parts of the following:

- (a) Explain 8 Queens problem with an example.
- (b) Explain Breadth First Search and Traversal with example.
- (c) Write down and explain the algorithm to solve all pair's shortest path problems.

5. Explain any two of the following:

- (a) LC branch-and-bound algorithm. <http://www.mjpruonline.com>
- (b) Dynamic programming
- (c) Multistage graphs
- (d) Explain graph coloring with following graph:



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