

Roll No.

67196

MCA 4th Semester CBCS Scheme

w.e.f. 2017-18

Examination – May, 2019

ANALYSIS AND DESIGN OF ALGORITHMS

Paper : 17MCA34DB1

Time : Three Hours] [Maximum Marks : 80

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt five questions in all, selecting one question from each Unit. Question No. 1 is compulsory. All questions carry equal marks.

- 1. (a) Explain general method of Divide & Conquer. 4 × 4 = 16
- (b) What is Asymptotic Analysis of an Algorithm ?
- (c) What is time complexity of an algorithm ?
- (d) Explain Live node, E-node and Dead Node in Branch & Bound method.
- (e) What is space complexity of an algorithm ?
- (f) Differentiate between Prim's and Kruskal's algorithm.

- (g) What is Linear Searching ?
- (h) Differentiate between 0/1 knapsack & fractional knapsack ?

UNIT – I

- 2. (a) Write and explain quick sort algorithm using divide and conquer method. 10
- (b) Explain Recursive Binary search with an example. 6
- 3. Explain the following with example : 2 × 8 = 16
- (a) Sets and disjoint set and how to find connected components using disjoint data structures.
- (b) Explain Strassen's matrix multiplication with an example. <https://www.haryanapapers.com>

UNIT – II

- 4. (a) What is spanning tree ? Write the Kruskal's algorithm for minimum spanning tree. Explain with suitable example. 10
- (b) What is 0/1 knapsack problem using dynamic programming ? Explain with example. 6
- 5. (a) What do you know about single source paths ? Explain Dijkstra algorithm with example. 10
- (b) What is traveling salesperson problem ? Explain with example. 6

UNIT – III

6. (a) What is 8 queen's problem ? Explain with example. 8
(b) What is graph coloring technique ? Explain with example. 8
7. (a) What do you understand branch and bound approach ? Explain traveling salesperson problem. 10
(b) What is Hamiltonian cycle ? Explain. 6

UNIT – IV

8. (a) What is Fibonacci heaps ? Write and explain algorithm for Fibonacci heaps. 10
(b) What is Red-Black tree ? Explain with example. 6
9. (a) Explain different NP scheduling problem. 6
(b) What is B-tree ? Explain insertion & deletion on B-trees with example only. 10

<https://www.haryanapapers.com>

Whatsapp @ 9300930012

Send your old paper & get 10/-

अपने पुराने पेपर्स भेजे और 10 रुपये पायें,

Paytm or Google Pay से