

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (CSE & DS) (Sem.-4)
DESIGN AND ANALYSIS OF ALGORITHMS
Subject Code : BTCS-403-18
M.Code : 91951
Date of Examination : 15-07-22

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1 Write briefly :

- a) What is asymptotic time complexity?
- b) What do you understand by algorithm evaluation?
- c) Give an example of dynamic programming approach.
- d) Define Branch-and-Bound method.
- e) What are the applications of shortest path algorithms?
- f) Differentiate between graph and tree.
- g) What are the advantages of topological sorting?
- h) Define P and NP class problem.
- i) What is computability of algorithms? Explain.
- j) List the types of Randomized Algorithms.

SECTION-B

2. Explain in detail about characteristics of algorithm.
3. What are greedy algorithms? What are their characteristics? Explain any greedy algorithm with an example.
4. Explain in detail about Minimum Spanning Tree with an example.
5. Differentiate between NP hard and NP complete problems with suitable examples.
6. What is a Randomized Algorithm? How to analyze Randomized Algorithms?

SECTION-C

7. Explain Depth First Search and Breadth First Search method with example.
8. Write a detailed note on the following :
 - a) Substitution Method
 - b) Network Flow Algorithm.
9. Write a detailed note on Approximation Algorithms.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.