

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

M.Sc. (Computer Science) (2019 & Onwards) (Sem.–2)

DATA STRUCTURES

Subject Code : MSC-203

M.Code : 71447

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students has to attempt any ONE question from each SECTION.
2. SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.

SECTION-A

- Q1. What do you mean by algorithm complexity? Explain time and space tradeoff among algorithm.
- Q2. What is a Stack? Explain push and pop operations using stacks discussing all the cases with the help of a suitable example.

SECTION-B

- Q3. Write an algorithm for insertion and deletion of an element at the front, mid and end in a double linked list.
- Q4. Write an algorithm that uses non-recursive algorithm for preorder, inorder and postorder traversal of a binary tree.

SECTION-C

- Q5. Explain Dijkstra's algorithm to find the shortest distance between source and destination with the help of an example.
- Q6. Distinguish between the breadth first and depth first traversals in a graph by taking suitable examples.

SECTION-D

- Q7. What is collision in Hashing? Explain various methods to resolve collisions.
- Q8. Explain Heapsort algorithm with the help of an example. Discuss best case, average case and worst case time complexity for heapsort algorithm.

SECTION-E

Q9. Answer briefly :

- a. What is dynamic memory management?
- b. Define B- trees.
- c. What are the various ways in which a graph can be represented?
- d. Write various applications of hashing.
- e. Explain priority queues.
- f. Differentiate between level and height of a tree.
- g. What is the worst case time complexity of merge sort?
- h. What is a weakly connected graph?
- i. Write an application of breadth first search.
- j. What are Circular lists?

downloaded from
StudentSuvidha.com

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.