

# C.U.SHAH UNIVERSITY

## Summer Examination-2018

Subject Name : Introduction to Algorithms & Data Structures

Subject Code : 4CS04IDS1

Branch: B.Sc.I.T.

Semester : 4

Date : 26/04/2018

Time : 10:30 To 01:30

Marks : 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
  - (2) Instructions written on main answer book are strictly to be obeyed.
  - (3) Draw neat diagrams and figures (if necessary) at right places.
  - (4) Assume suitable data if needed.
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**Q-1 Attempt the following questions:**

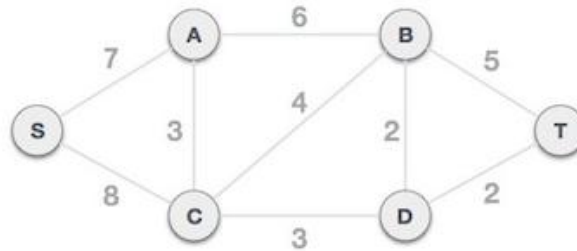
**(14)**

- a) Two main measures for the efficiency of an algorithm are :
  - A. Processor and memory
  - B. Complexity and capacity
  - C. Time and space
  - D. Data and space
- b) Process of inserting an element in stack is called \_\_\_\_\_
  - A. Create
  - B. Evaluation
  - C. Push
  - D. Pop
- c) Which data structure is used for implementing recursion?
  - A. Queue
  - B. Stack
  - C. Array
  - D. List
- d) The data structure required for Breadth First Traversal on a graph is?
  - A. Stack
  - B. Array
  - C. Queue
  - D. List
- e) A Stack follows \_\_\_\_\_
  - A. FIFO
  - B. LIFO
  - C. Array
  - D. List
- f) What is a dequeue?
  - A. A queue with insert/delete defined for both front and rear ends of the queue
  - B. A queue implemented with a doubly linked list
  - C. A queue implemented with both singly and doubly linked lists
  - D. None of above
- g) What is a hash table?
  - A. A structure that maps values to keys
  - B. A structure that maps keys to values
  - C. A structure used for storage
  - D. A structure used to implement stack and queue
- h) What is a hash function?
  - A. A function has allocated memory to key
  - B. A function that computes the location of the key in the array





- Q-6**      **Attempt all questions**      (14)
- a) Explain types of functions with diagram      (7)
- b) Explain asymptotic notation.      (7)
- Q-7**      **Attempt all questions**      (14)
- a) Explain differences between DFS and BFS.      (7)
- b) Explain graph representation methods with examples      (7)
- Q-8**      **Attempt all questions**      (14)
- a) Find MST using Krushkal's algorithm      (7)



- b) Write in order, pre order and post order traversal for the following tree.      (7)

