

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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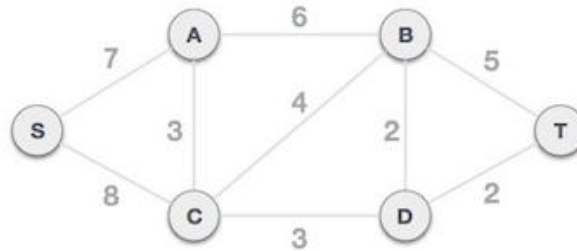
Q-1 Attempt the following questions:

(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)

