Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Summer Examination-2018

Subject Name : Design & Analysis of Algorithms

Subject Code : 5CS01WAA1 **Branch: M.Sc.IT (WebTech)**

Semester : 1 **Date :21/03/2018** **Time :02:30 To 5:30** **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.

SECTION – I

Q.-1 Attempt following. **7**

a) Define Omega Notation? 2
b) What is divide and conquer? 2
c) Define best case and worst case analysis. 2
d) What is algorithm? 1

Q.-2 Attempt following. **14**

a) Explain Merge sort with algorithm. 5
b) Describe various tools to develop algorithm. 5
c) Explain properties for algorithm. 4

OR

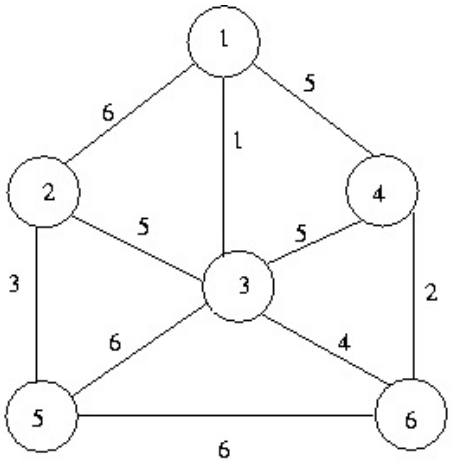
a) Explain Quick sort with algorithm. 5
b) Explain Binary search Tree with algorithm. 5
c) Write a note on: Order of growth. 4

Q.-3 Attempt following. **14**

a) Write a note on : Minimum Spanning tree (MST). 5
b) Explain Kruskal's Algorithm with example. 5
c) Explain Heap with properties. 4

OR

a) Explain Prim's Algorithm with example. 5
b) Find minimum spanning tree for following using Kruskal's algorithm. 5



c) Describe: Longest common subsequences. 4

SECTION – II

Q.-4 Attempt following. **7**

Define following with example.

a) External node. 2
b) Directed and undirected graph 2
c) Degree of a node. 2
d) Weighted graph 1

Q.-5 Attempt following. **14**

a) Explain Stack operations with PUSH and POP algorithms. 5
b) Write a note on : Breadth First Search. 5
c) Describe Matrix chain multiplication. 4

OR

a) Explain DFS algorithm and its applications. 5
b) Explain Adjacency matrix and adjacency list for a matrix. 5
c) Write a note on : Double ended queues. 4

Q.-6 Attempt following. **14**

a) Explain AVL trees. 5
b) Explain topological sort. 5
c) Write an algorithm for Pre-order and in-order traversal of a tree. 4

OR

a) Explain elements of dynamic programming. 5
b) Explain Doubly linked list with insert operations. 5
c) Briefly explain Binary search with algorithm. 4