Question Paper

MANIPAL UNIVERSITY

SCHOOL OF INFORMATION SCIENCES (SOIS)
FIRST SEMESTER MASTER OF ENGINEERING- ME(VLSI DESIGN)
DEGREE EXAMINATION- APRIL 2017
Thursday, 20,2017
Time :10:00AM- 1:00PM

Data Structures [EDA 609]

Marks: 100 **Duration: 180 mins.**

Answer all the questions.

1) Write the data structures required to implement single linked list. Write functions to add an element at the tail position and count the number of elements in the list. (4+4+2) (10)

2) Write the data structures required to implement array based stack. Write functions to check whether stack is full, stack is empty and delete element from stack. (3+2+2+3) (10)

3) Give the data structure required for array based queue. Write functions to create a queue, add and delete element from circular queue. (2+2+3+3) (10)

4) With required data structure write function to add element into Binary Search Tree. Write a function for In-Order traversal of a binary search tree. (3+5+2) (10)

5) Implement insertion sort. Give an example. Discuss its time complexity. (5+3+2) (10)

6) Provide different techniques for representing graph. Describe Primâ€™s algorithm with example. (4+4+2) (10)

7)	What is hashing? With required data structure, write function to delete an element from Hash table using separate chain hashing (open hashing). (2+3+5)	(10)
8)	Considering two linked list A and B. Write a function to create linked list C = A intersection B. (3+7)	(10)
9)	Write a program to find maximum and minimum element in a linked list (5 + 5)	(10)
10)	Write functions to A. Extract element from Maximum heap (5) B. Insert element into Maximum heap (5)	(10)