

# END TERM EXAMINATION

SECOND SEMESTER [MCA] MAY-JUNE-2019

Subject: Data and File Structure  
Maximum Marks : 75

Time : 3 Hours

Note: Attempt five questions in all including Q. No. 1 which is compulsory. Select one question from each unit.

- Q1 (a) Write any five applications of stacks. (2.5)  
 (b) Define queue and what are the operations that can be performed on queues? (2.5)  
 (c) Differentiate between full binary tree & complete binary tree? (2.5)  
 (d) List the properties of B-tree? (2.5)  
 (e) Write short note on bubble sort algorithm. (2.5)  
 (f) What are the merits and demerits of binary search? (2.5)  
 (g) Explain critical path. (2.5)  
 (h) What is meant by activity network? (2.5)  
 (i) What are the various disadvantages of sequential file organization? (2.5)  
 (j) Explain polyphase merge. (2.5)

### UNIT-I

- Q2 (a) Write various steps to transform the following postfix expression to infix expression: ABCDE - + \$ \* EF \* -. (8)  
 (b) Differentiate between multistack and multiqueue. (4.5)

- Q3 Define doubly linked list. Write the procedure to implement following operations on a doubly linked list. (12.5)  
 (i) Insert an element at beginning.  
 (ii) Insert an element at a particular location.  
 (iii) Delete an element from beginning.  
 (iv) Delete an element from a particular location.

### UNIT-II

- Q4 (a) Construct a binary tree whose order of needs in is given as blow. (8)  
 Inorder: D B H E A I F J C G  
 Preorder: A B D E H C F I J G  
 (b) What is a AVL tree? Explain the advantages of AVL trees. (4.5)

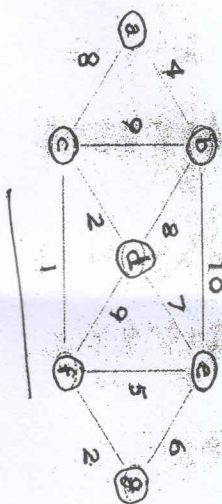
### UNIT-III

- Q5 Explain in detail the various operations that can be performed on priority queue. (12.5)  
 Q6 (a) Write an algorithm to sort the elements using mergesort. (10)  
 (b) Write a short note on Hash Table. (2.5)

P.T.O.

[2-1]

Find the minimum spanning tree of the following graph using Kruskal's Algorithm. (12.5)



### UNIT-IV

- Q8 (a) Differentiate between double buffering and block buffering. (4)  
 (b) Write a C program to read name and marks of n number of students from user and store them in a file. (8.5)
- Q9 Explain any six functions that are used for handling sequential files in C language. (12.5)

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