

Internal Assessment Test II – November 2019

Sub:	Design and Analysis of Algorithms						Code:	18MCA33	
Date:	16 -11-19	Duration:	90 mins	Max Marks:	50	Sem:	III A	Branch:	MCA

Note: Answer any full 5 questions. All questions carry equal marks.

Total marks: 50

Marks	OBE	
	CO	RBT
10	CO1	L1 L2
10	CO2 CO3 CO4	L2 L3 L4
10	CO2 CO3 CO4	L2 L3 L4
10	CO2 CO3 CO4 CO6	L3 L4
5 5	CO2 CO3 CO4 CO6	L3 L4

1. Describe the general method for divide and conquer. State the Masters Theorem

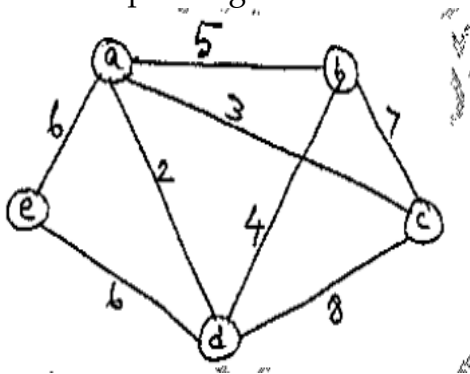
(OR)

2. Explain and write algorithm for the brute force string matching process and Apply it to search for ABABC using the above algorithm in the text : BAABABABCCA.

3. Write an algorithm to multiply two large integers using divide and conquer and analyze its efficiency. Use the divide and conquer strategy to multiply 6721 and 3032.

(OR)

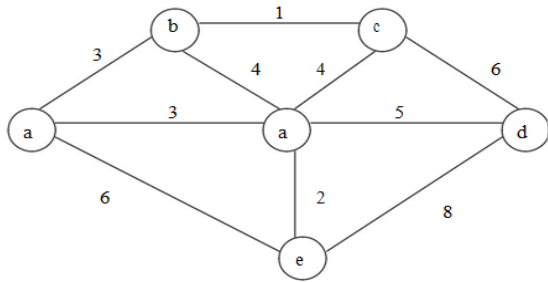
4. Explain and design Prim's algorithm and apply it for the given graph to find minimum cost spanning tree .



5. a) Explain the greedy method and write the general algorithm for the method
b) Define Minimum spanning tree and mention its applications

(OR)

6. Find the minimum cost spanning tree for the given graph below by applying Kruskal's algorithm. Write the algorithm and compute minimum cost .

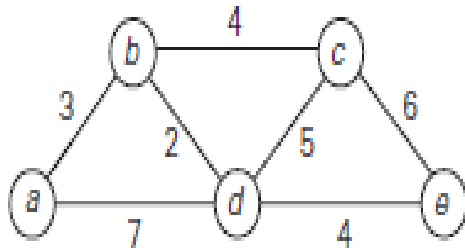


7. Write and analyze the Huffman coding algorithm. Show the tree and code for the set of symbols given below along with their relative frequency.

symbol	A	B	C	D	-
frequency	0.35	0.1	0.2	0.2	0.15

(OR)

8. Explain the Dijkstra's single source shortest path algorithms and analyze its time complexity. Source vertex 'a'.



9. Define Binary Tree .Write algorithms for inorder, preorder and postorder traversal of a binary tree. Give examples for all three .

OR

- 10 Explain Warshall's algorithm for the finding the transitive closure of a graph.

$$\begin{pmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0. \end{pmatrix}$$

10	CO2 CO3 CO4 CO6	L3 L4
10	CO2 CO3 CO4	L3 L4
10	CO2 CO3 CO4 CO6	L3 L4
10	CO1 CO2	L3 L4
10	CO2 CO3 CO4	L3 L4

