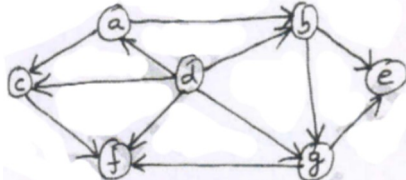
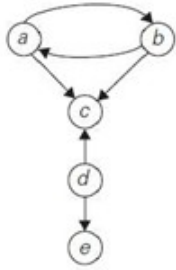
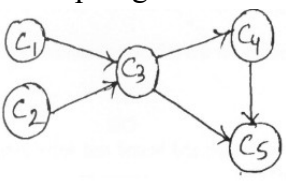
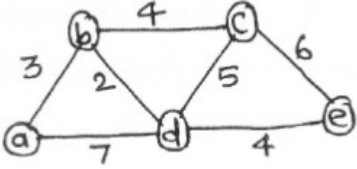
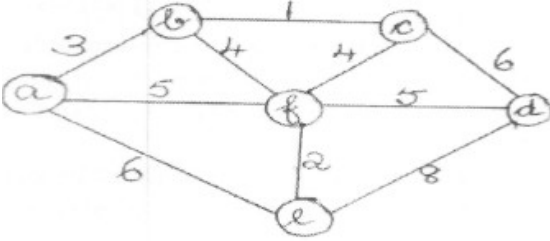
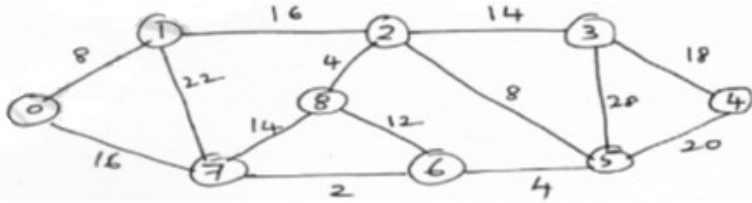


CONTINUOUS INTERNAL EVALUATION- 2

Dept:CSE	Sem / Div:4/A & B	Sub: Design and Analysis of Algorithms	S Code:18CS42
Date:24/06/2021	Time:3:00-4:30 pm	Max Marks:50	Elective: N
Note: Answer any 2 full questions, choosing one full question from each part.			

QN	Questions	Marks	RBT	COs												
PART A																
1 a	Apply DFS and Source Removal method to achieve topological sorting for the following Graph. 	12	L3	CO2												
b	Explain topological sorting. Draw the DFS forest for the following graph 	13	L3	CO2												
OR																
2 a	Explain the three major variations of decrease and conquer technique with example	12	L2	CO2												
b	Explain topological Sort Source removal method. Apply source removal method to obtain topological Sort for the following graph 	13	L3	CO2												
PART B																
3 a	Construct a Huffman code for the following data <table border="1" data-bbox="319 1859 1021 1937"> <tr> <td>Character</td> <td>A</td> <td>B</td> <td>C</td> <td>D</td> <td>-</td> </tr> <tr> <td>Probability</td> <td>0.4</td> <td>0.1</td> <td>0.2</td> <td>0.15</td> <td>0.15</td> </tr> </table> Encode the text ABACABAD and decode the text 100010111001010, using the above code	Character	A	B	C	D	-	Probability	0.4	0.1	0.2	0.15	0.15	6	L3	CO3
Character	A	B	C	D	-											
Probability	0.4	0.1	0.2	0.15	0.15											

CONTINUOUS INTERNAL EVALUATION- 2

	<p>b Design Dijkstra's algorithm and apply the same to find the single source shortest path for graph taking vertex 'a' as source</p> 	9	L3	CO3
	<p>c Apply Prim's algorithm to obtain a minimum spanning tree for the given weighted connected graph</p> 	10	L3	CO3
4	<p>a Write an algorithm to solve knapsack problem using greedy technique. Find the optimal solution to the knapsack instance $n = 7$, $m = 15$.</p> <p>$(P_1, P_2, \dots, P_7) = (10, 5, 15, 7, 6, 18, 3)$</p> <p>$(w_1, w_2, \dots, w_7) = (2, 3, 5, 7, 1, 4, 1)$</p>	6	L3	CO3
	<p>b Define heap. Write bottom up heap construction algorithm. Sort the given list of numbers using heap sort: 2, 9, 7, 6, 5, 8</p>	9	L3	CO3
	<p>c Find the minimum cost spanning tree using Kruskal's Algorithm</p> 	10	L3	CO3

Vandana

Nithin

Nithin