Department of Electrical and Computer Engineering
North South University

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Assignment on Graphs

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Course Details
CSE225 (Section 12)
Data Structures and Algorithms

Submitted To
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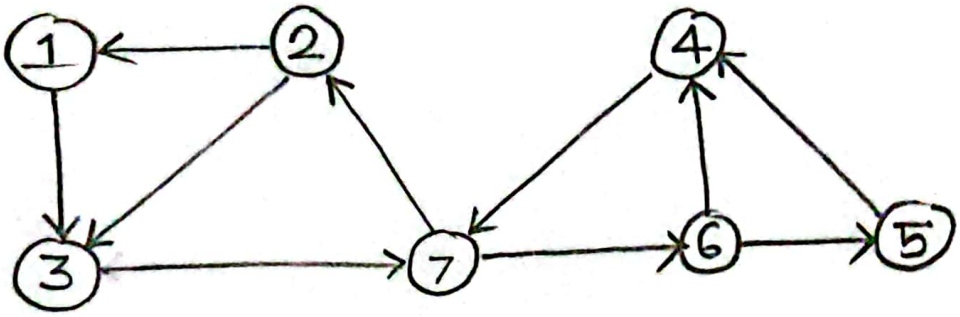
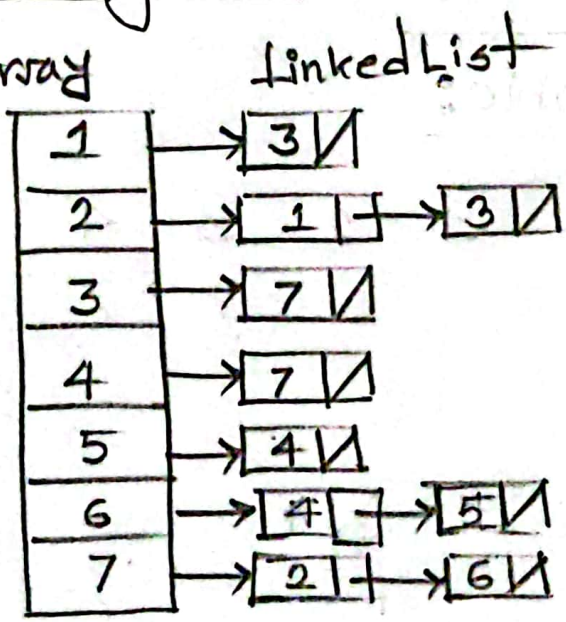
November 17, 2023

Ans to the que NO-1



Adjacency Lists:



Adjacency Matrix:

	1	2	3	4	5	6	7
1	0	0	1	0	0	0	0
2	1	0	1	0	0	0	0
3	0	0	0	0	0	0	1
4	0	0	0	0	0	0	1
5	0	0	0	1	0	0	0
6	0	0	0	1	1	0	0
7	0	1	0	0	0	1	0

7×7

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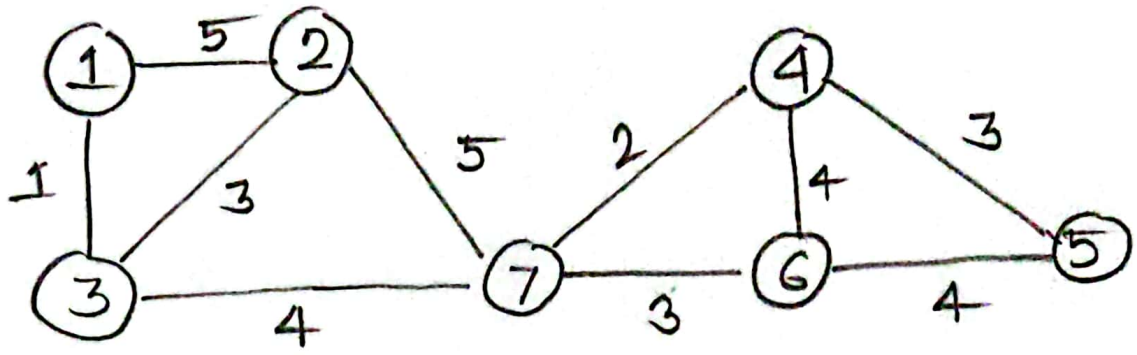
Ans to the que NO-2

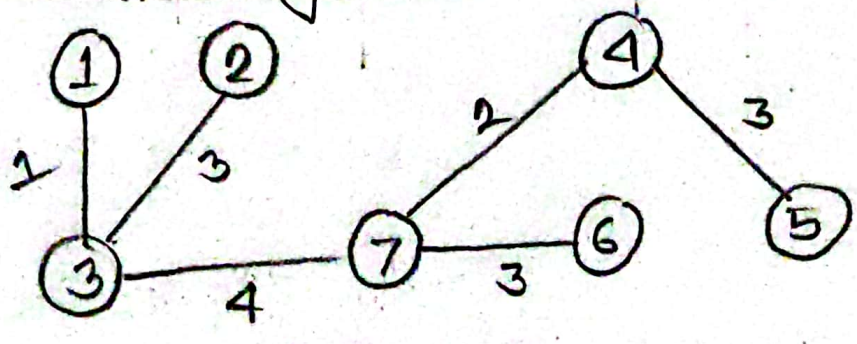


Prim's Algorithm:

Simulation Table:

iteration	1	2	3	4	5	6	7
0	0/NULL	∞/NULL	∞/NULL	∞/NULL	∞/NULL	∞/NULL	∞/NULL
1(1)	0/NULL	5/1	1/1	∞/NULL	∞/NULL	∞/NULL	∞/NULL
2(3)	0/NULL	3/3	1/1	∞/NULL	∞/NULL	∞/NULL	4/3
3(2)	0/NULL	3/3	1/1	∞/NULL	∞/NULL	∞/NULL	4/3
4(7)	0/NULL	3/3	1/1	2/7	∞/NULL	3/7	4/3
5(4)	0/NULL	3/3	1/1	2/7	3/4	3/7	4/3

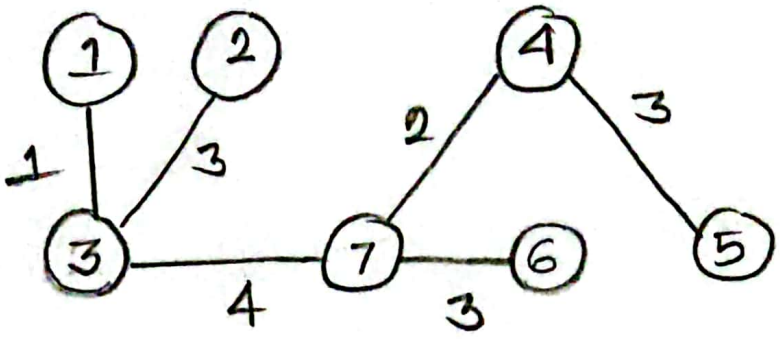
Minimum Spanning Tree:



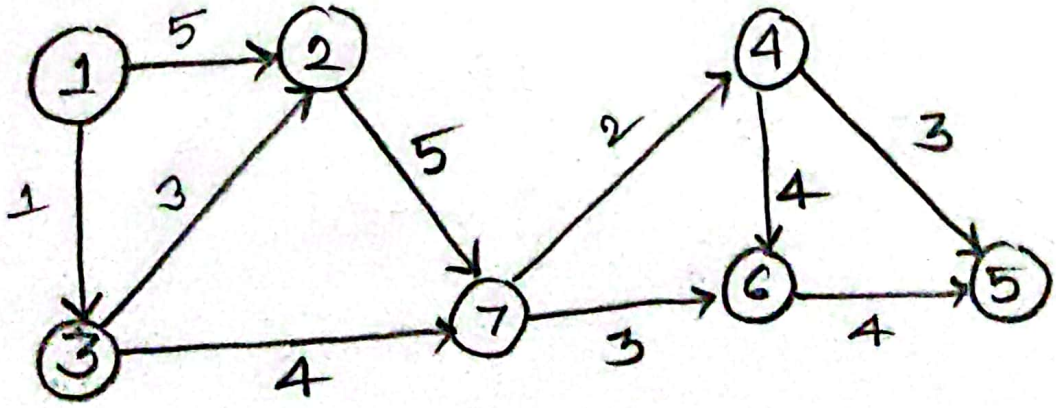
Kruskal's Algorithm:

(1,3) = 1
(4,7) = 2
(2,3) = 3
(4,5) = 3
(6,7) = 3
(3,7) = 4
(4,6) = 4
(5,6) = 4
(1,2) = 5
(2,7) = 5

Minimum Spanning Tree:



Ans to the que NO-3



Dijkstras Algorithm:

Simulation Table

iteration	1	2	3	4	5	6	7
0	0/NULL	∞/NULL	∞/NULL	∞/NULL	∞/NULL	∞/NULL	∞/NULL
1(1)	0/NULL	5/1	1/1	∞/NULL	∞/NULL	∞/NULL	∞/NULL
2(3)	0/NULL	4/3	1/1	∞/NULL	∞/NULL	∞/NULL	5/3
3(2)	0/NULL	4/3	1/1	∞/NULL	∞/NULL	∞/NULL	5/3
4(7)	0/NULL	4/3	1/1	7/7	∞/NULL	8/7	5/3
5(4)	0/NULL	4/3	1/1	7/7	10/7	8/7	5/3

Minimum-weight paths from source node 1 to each other node: