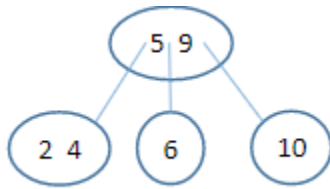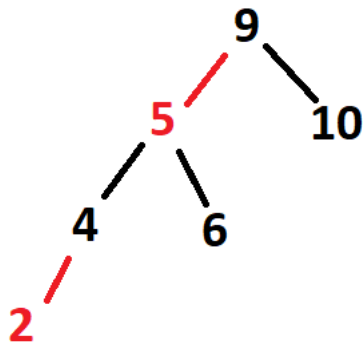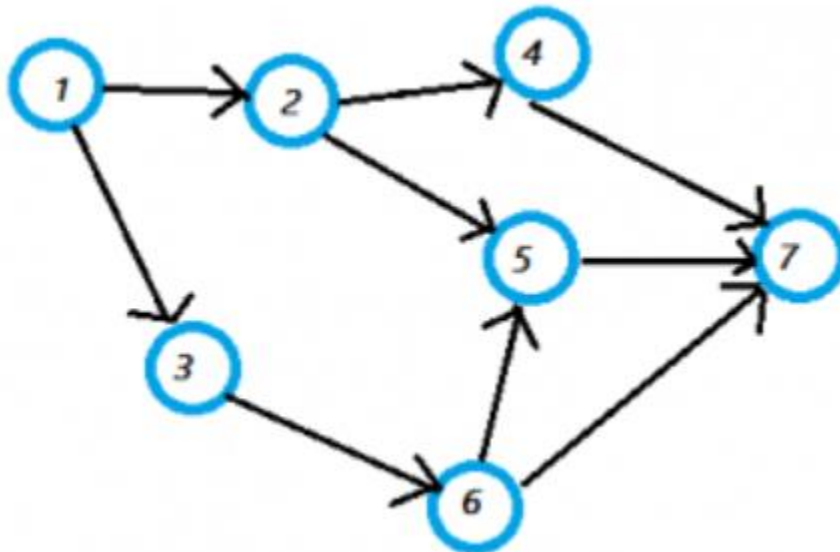1. Given the following 2-3 tree, concert it into a LL red-black BST:

Pls refer to extra slide "converting 2-3 tree into LL red-black BST" under lecture slide folder
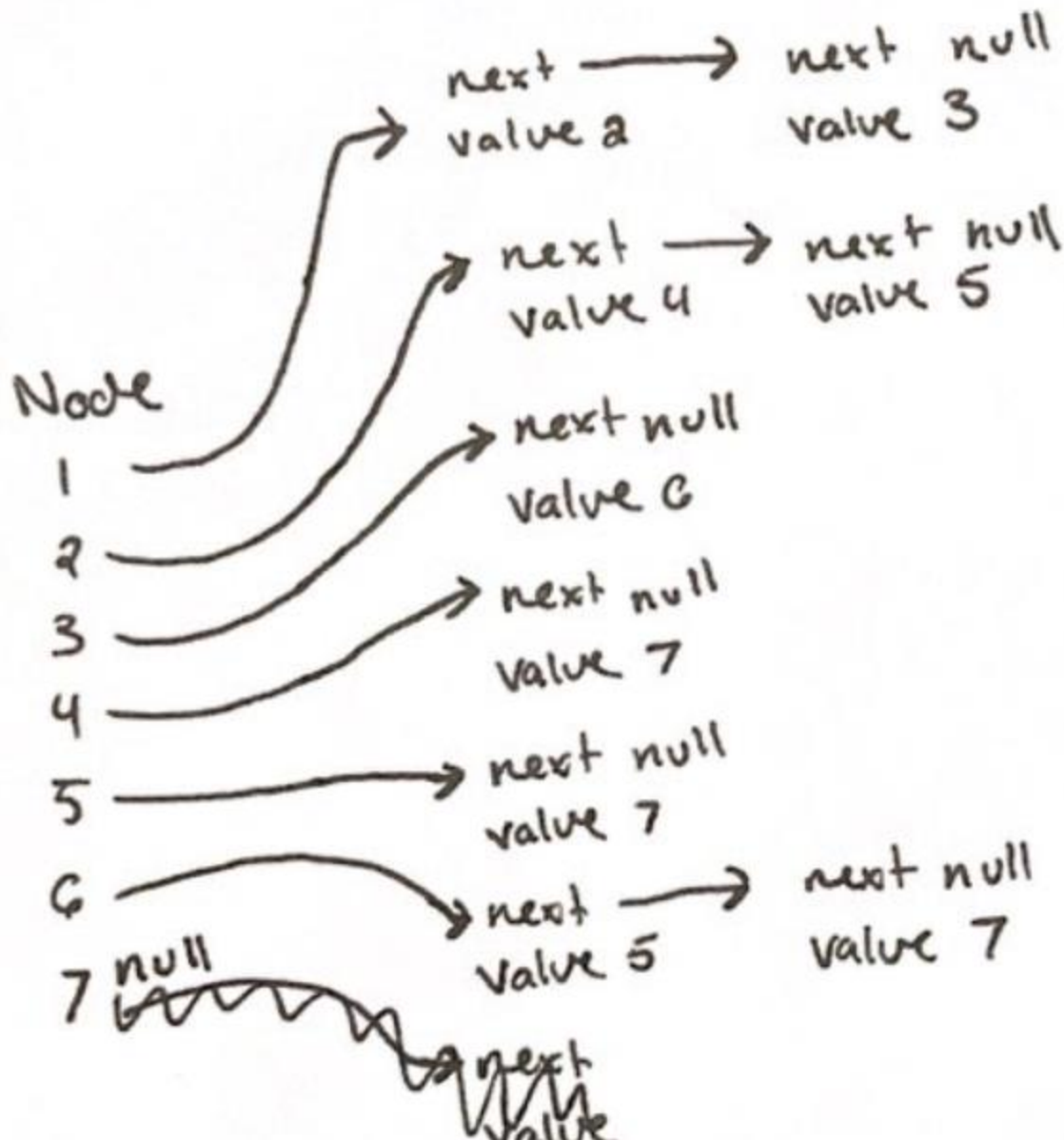

2. Given the following directed graph:

a) write/draw the adjacency matrix of the graph
b) write/draw the adjacency list of the graph
c) Starting from vertex 1, list the result of BFS

d) Starting from vertex 1, list the result of DFS

Thanks to Katherine's answer.

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

Node

next ⟶ next null
value 2   value 3

next ⟶ next null
value 4   value 5

1

next null
value 6

2

next null
value 7

3

4

next null
value 7

5

6

next ⟶ next null
value 5   value 7

7 null

next
value

The order of nodes within each node does NOT matter, for example, 1->3->2 will also be correct

c) 1 2 3 4 5 6 7

d) 1 2 4 7 5 3 6   This is **visiting order,** in the exam, it will ask for visiting order, some students used finishing order, that will be useful for topological sort in future.