1. Given (*logn*) sorted lists, each of size (*n/logn*). What is the total time required to merge them into one single list? Where n denotes any positive number greater than 100. (5 Marks)
2. Derive the worst case time complexity of Quicksort. (5 Marks)
3. Prove that build max heap takes only O(n) time complexity. (5 Marks)
4. Find minimal spanning tree for the following graph (5 Marks)

Graph	Node1	Node2	Node3	Node4
Node1	0	10	10	50
Node2	10	0	40	30
Node3	10	40	0	20
Node4	50	30	20	0

5. Derive the time complexity for DFS in a Graph. (5 Marks)