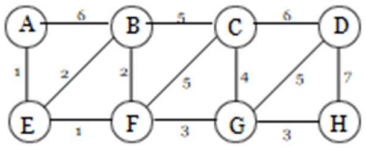
Department of Computer Science and Engineering,
Anna University, Chennai- 600025
CS23302 – Data Structures and Algorithms (R 2023)
Practical
August – December 2024
Year/Sem/Batch : II/III/ N & Q

Exercise: 08	GRAPHS AND SPANNING TREE	18 – Oct - 2024

Spot (5 Marks)

1.

Consider the following graph



- What is the cost of its minimum spanning tree?
- How many minimum spanning trees does it have?
- Suppose Kruskal's algorithm is run on this graph. In what order are the edges added to the MST? For each edge in this sequence, give a cut that justifies its addition

2. Implement prim's algorithm for the above graph.

Consider an undirected graph G = (V, E) with nonnegative edge weights $w_e \geq 0$.
Suppose that you have computed a minimum spanning tree of G.
Now suppose each edge weight is increased by 1: the new weights are $w_e' = w_e + 1$.

- Does the minimum spanning tree change? Give an example where it changes or prove it cannot change