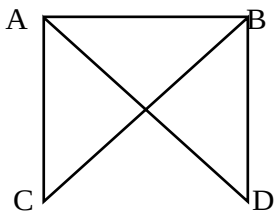
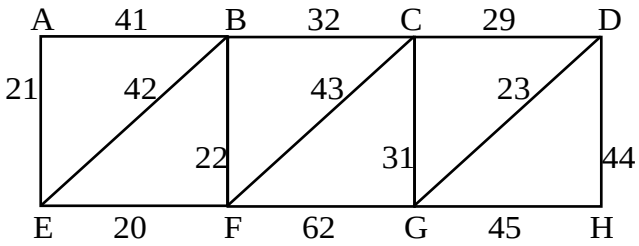
SRM Institute of Science and Technology
College of Engineering and Technology
Department of Mathematics
SRM Nagar, Kattankulathur – 603203, Chengalpattu District, Tamil Nadu

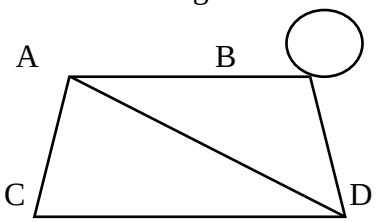
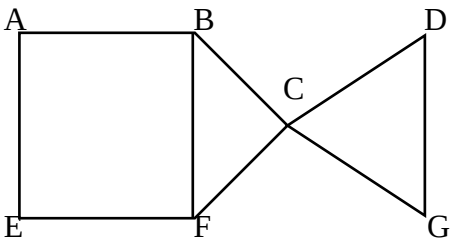
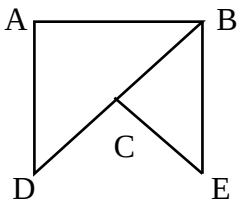
Academic Year: 2023-2024(odd)

Tutorial sheet - 3

Date: 16/10/2023

Course Code &Title: 18MAB302T - Discrete Mathematics for Engineers
Year & Sem: III/V

Q. No	Questions	Answer Keys
1	Draw all the spanning trees of the graph 	
2	Find the minimum spanning tree for the following weighted graph using Kruskal's algorithm 	**(c) 2**
3	Prove that the maximum number of edges in a simple disconnected graph G with n vertices and k components is $\frac{(n-k)(n-k+1)}{2}$.	
4.	Give an example of a graph which contains an Eulerian circuit but not a Hamiltonian circuit.	
5.	If a graph G has 7 vertices then find its chromatic number.	
6.	A simple graph in which there is exactly one edge between each pair of distinct vertices is called _____	**Complete graph**
7.	Define adjacency matrix of a graph G. Draw the graphs represented by the following adjacency matrix $\begin{matrix} A \\ B \\ C \\ D \end{matrix}\begin{pmatrix} 0 & 1 & 1 & 1 \\ 1 & 0 & 0 & 0 \\ 1 & 0 & 0 & 1 \\ 1 & 0 & 1 & 0 \end{pmatrix}$	

8.	Verify the handshaking theorem for the following graphs i)  (ii) 	
9.	Prove that an undirected graph is a tree if and only if there is a unique simple path between every pair of vertices.	
10.	Find the number of paths of length 4 from the vertex D to the vertex E in the following undirected graph and identify those paths from the graph.