SRM Institute of Science and Technology
College of Engineering and Technology
Department of Mathematics
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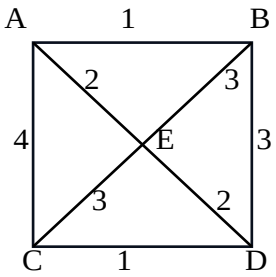
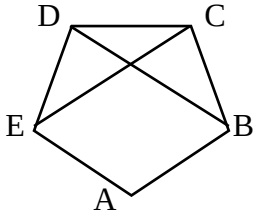
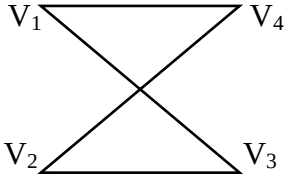
Academic Year: 2023-2024(odd)

Tutorial sheet - 1

Date: 16/10/2023

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

Q. No	Questions	Answer Keys
1	Use Kruskal's algorithm to find a minimum spanning tree for the following weighted graph.  	
2	Draw the graph 5 vertices A, B, C, D, E such that deg(A) = 3, B is an odd vertex, deg(C) = 2 and D and E are adjacent.	
3	Prove that the number of vertices of odd degree in an undirected graph is even.	
4.	Prove that a tree with n vertices has (n-1) edges.	
5.	Find the number of edges in K_6.	**(c) 15**
6.	Draw the graph for the given adjacency matrix $\begin{pmatrix} 1 & 2 & 0 & 1 \\ 2 & 0 & 3 & 0 \\ 0 & 3 & 1 & 1 \\ 1 & 0 & 1 & 0 \end{pmatrix}$	
7.	Find the number of vertices, then number of edges and the degree of each vertex in the following undirected graph. Verify also the handshaking theorem.  	

8.	Justify whether the following graphs are isomorphic or not.  G_1  G_2	
9.	For each of the following degree sequence, find if there exist a graph. In each case, either draw a graph or explain why no graphs exists. (a) 4, 4, 4, 3, 2 (b) 5, 4, 3, 2, 1, 1	
10.	Prove that the number of edges in a bipartite graph with a vertices is at most $(n^2/2)$.	