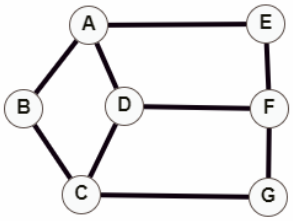
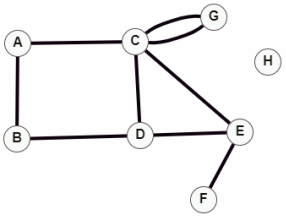
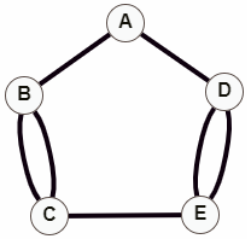
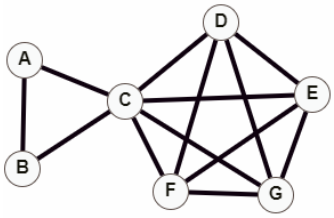
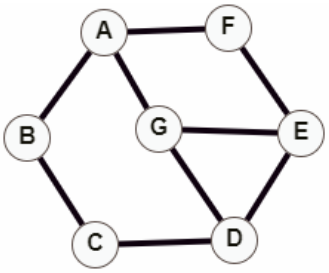
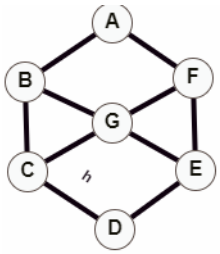
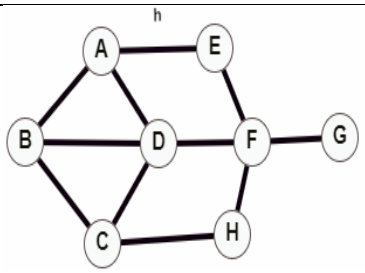
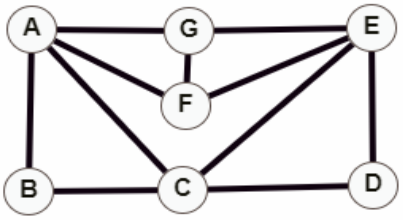
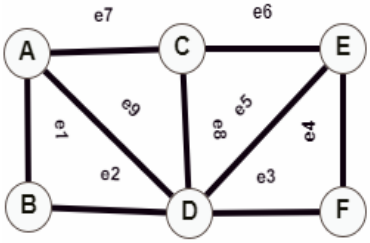
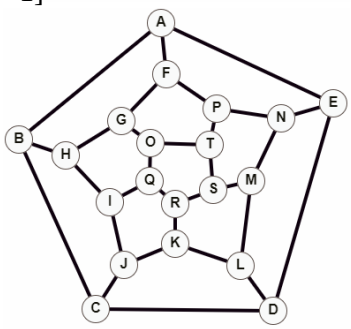
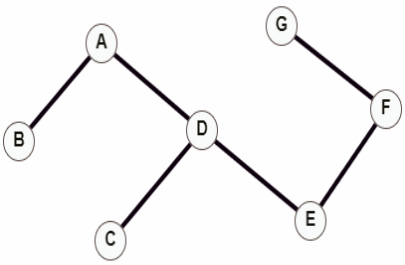
Subject: DM (01CE0409) **SEM: 04** **AY: 2023-24**

Assignment: 4
Unit: Graphs & Trees

1	Find the degree of all vertex of graph. 1]  2]  3]  4]  5]  	Understanding
2	Draw a graph with five vertices a, b, c, d, e such that deg(a) =3, b is an odd vertex, deg(c)=2 and e and d are adjacent.	Evaluate
3	Show that the maximum number of edges in a simple graph with n vertices is $\frac{n(n-1)}{2}$.	Understanding
4	Prove that in a graph the number of the vertices with odd degree is even in quantity.	Analysing
5	Define the graph. State and prove first theorem of graph theory	Apply
6	1. A graph has five vertices of degree 4 and two vertices of degree 2. How many edges does it have? 2. A graph has degree sequence 5,5,4,4,3,3,3,3 how many edges does it have ?	Analysing
7	Give an example of a graph such that every vertex is adjacent to two vertices and every edge is adjacent to two edges	Application
8	a. For each of the Graph. draw picture of subgraphs G-{A}, G-{F}, G-{h}.	Evaluate

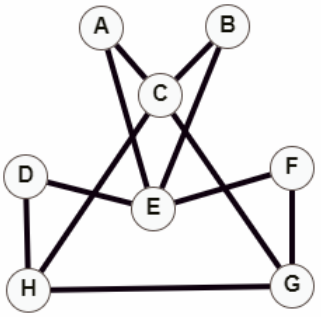
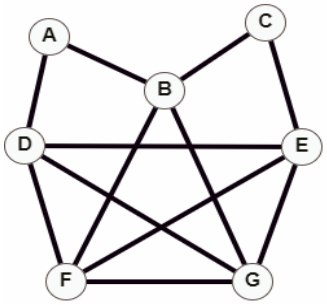
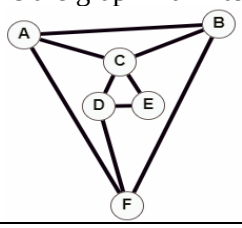
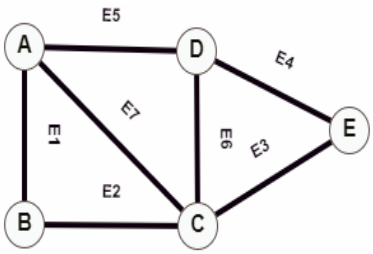
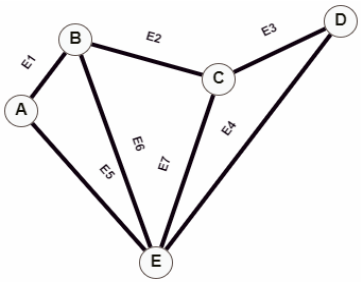
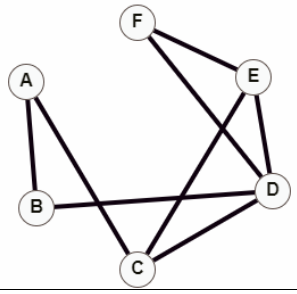
Subject: DM (01CE0409) **SEM: 04** **AY: 2023-24**

Assignment: 4
Unit: Graphs & Trees

	1]  2] 	
9	For each of the following sequences, determine if there exists a graph whose degree sequence is the one specified. In each case either draw a graph or explain why no graph exists. 1. 4,4,4,3,2 2. 5,4,3,2,2 3. 1,1,1,1,1,1 4. 4,3,2,2,1	Evaluate
10	Check the following are Hamiltonian graph or not. 1]  2]  3]  4] 	Understanding
11	Is the graph Eulerian? Explain your answers. Also check for Hamiltonian graph?	Understanding

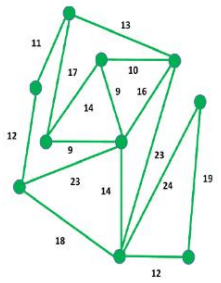
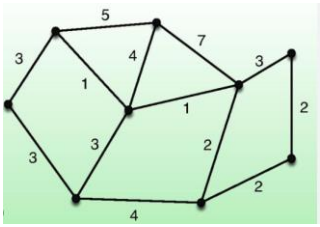
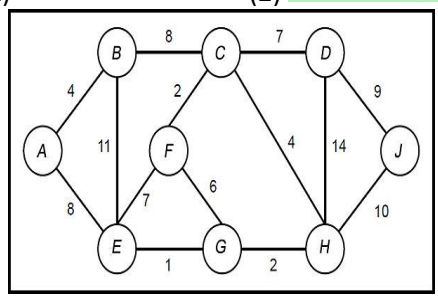
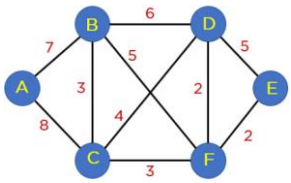
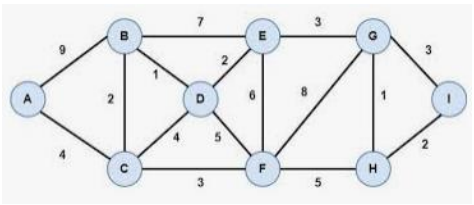
Subject: DM (01CE0409) **SEM: 04** **AY: 2023-24**

Assignment: 4
Unit: Graphs & Trees

	1]  2] 	
12	Draw Petersen graph? Is the graph Hamiltonian? Is it Eulerian? Explain your answers.	Understanding
13	Is the graph Hamiltonian? If no, why not? If yes, find all Hamiltonian cycles. 	Apply
14	Explain the spanning tree. Consider the following graph and draw its possible spanning tree.  1]  2] 3] 	Applying
15	Apply Kruskal's algorithm the minimum weighted spanning tree of following graph.	Apply

Subject: DM (01CE0409) **SEM: 04** **AY: 2023-24**

Assignment: 4
Unit: Graphs & Trees

	(1)  (2)  3] 	
16	Apply Dijkarta's 's algorithm the minimum weighted spanning tree of following  	Apply