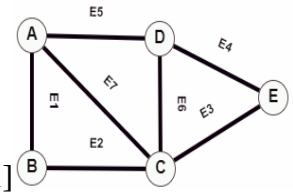
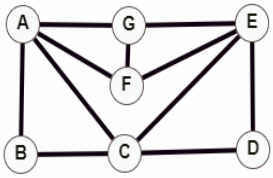
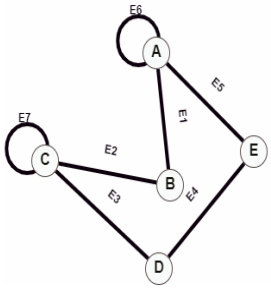
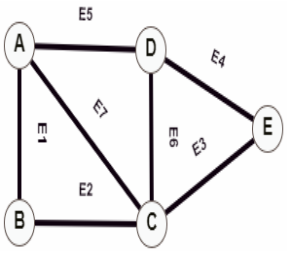
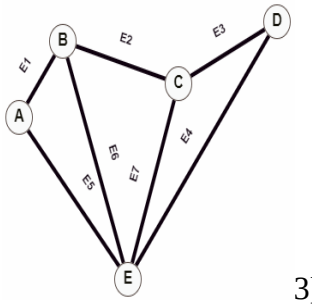
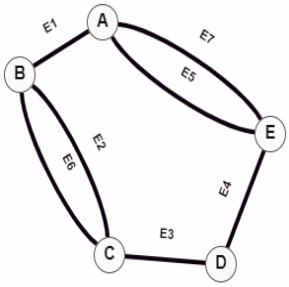
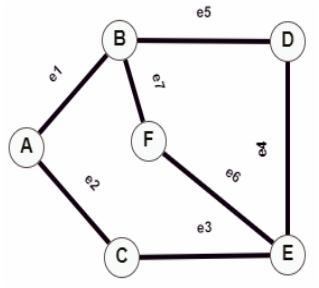
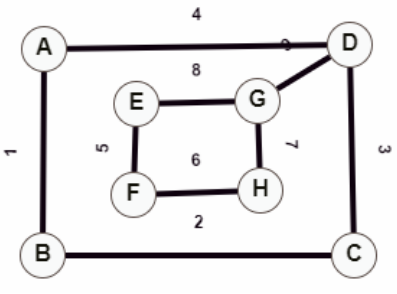
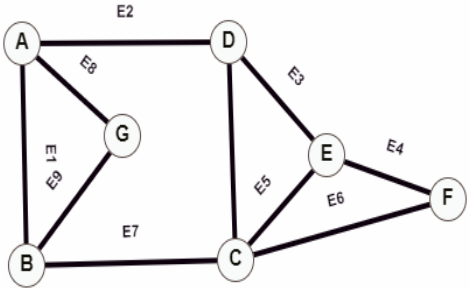
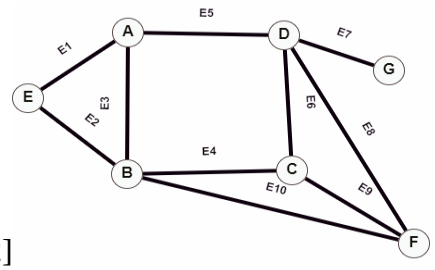
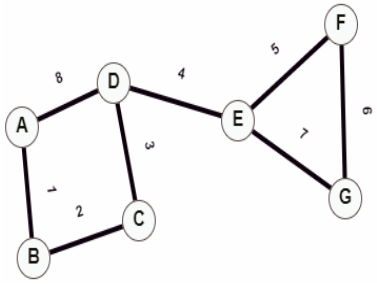
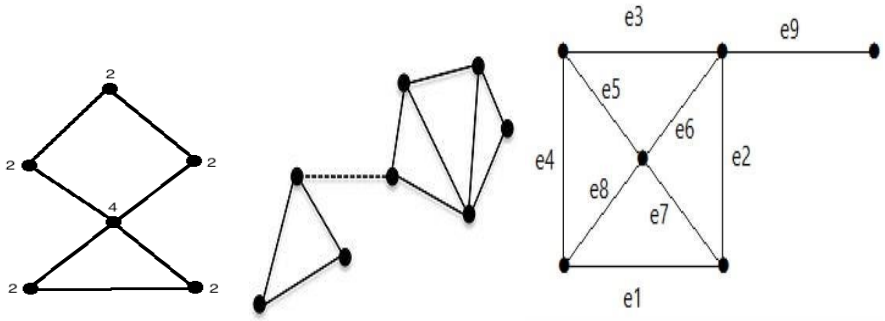
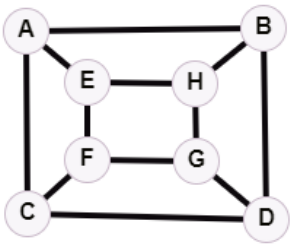
Subject: DM (01CE0409) **SEM: 04** **AY: 2023-24**

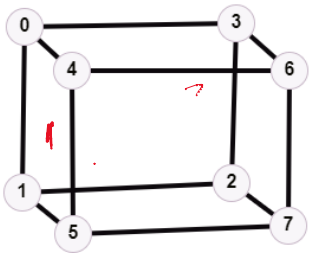
Assignment: 5
Unit: 5 Graph Representations using Matrix

1	Derive the Adjacency matrix for the following graph. 1]  2]  3] 	Evaluate
2	Which of the following matrix is the adjacency matrix of the graph? Justify with sketch graph. $\begin{bmatrix}0&0&1\\0&1&0\\1&0&0\end{bmatrix}$ $\begin{bmatrix}0&1&0&1\\1&0&1&0\\0&1&0&1\\1&0&1&0\end{bmatrix}$ $\begin{bmatrix}0&0&1\\0&0&1\\1&1&0\end{bmatrix}$ $\begin{bmatrix}0&1&0\\1&0&0\\0&0&1\end{bmatrix}$ $\begin{bmatrix}1&1&0&0\\1&0&1&0\\0&1&1&1\\0&0&1&0\end{bmatrix}$	Applying
3	Derive the adjacency matrix of K_6 , $K_{4,6}$	Applying
4	Derive the incidence matrix for the following graph.  2]  3] 	Understanding
5	Which of the following matrix is the Incidence matrix of the graph? justify with sketch graph $\begin{bmatrix}1&1&1&0&0&0\\1&0&0&1&1&0\\0&1&0&1&0&1\\0&0&1&0&1&1\end{bmatrix}$ $\begin{bmatrix}1&1&0&0&0&0\\0&0&1&1&0&1\\0&0&0&0&1&1\\1&0&1&0&0&0\\0&1&0&1&1&0\end{bmatrix}$ $\begin{bmatrix}1&0&0&0&0\\1&1&1&0&0\\0&1&0&1&1\\0&0&1&1&1\end{bmatrix}$ $\begin{bmatrix}1&1&1&0&0&0&0&0&1&1\\1&1&0&1&1&1&0&0&0&0\\0&0&1&1&1&0&1&1&0&0\\0&0&0&0&0&1&1&1&1&1\end{bmatrix}$	Applying

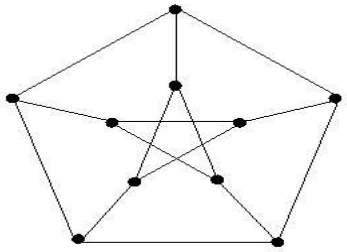
6	Derive the incidence matrix of K_5 , $K_{2,6}$	Applying
7	Define the cut sets and derive minimum 5 cut sets from following graph also draw the sketch of graph. 1]  2]  	Evaluate
8	Define Fundamental cut sets and circuits and derive all fundamental cut sets and circuit for following graph. 1]  2]  3]  	Understanding
9	Define edge and vertex connectivity and justify which graph is a separable graph.  	Analyzing
11	Which of the following are Isomorphic?	Analyzing

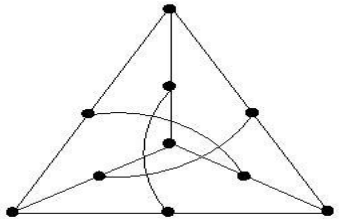
1]





2]





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