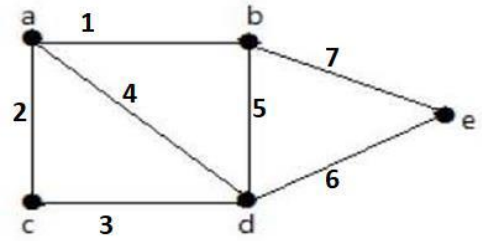
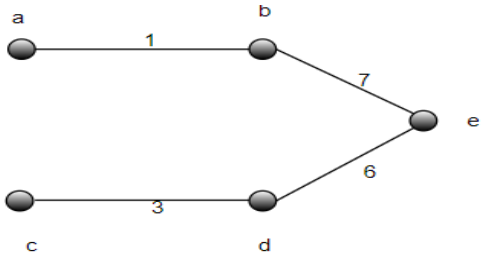
Subject: **Discrete Mathematics (01CE0409**)

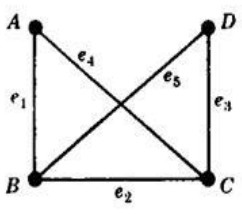
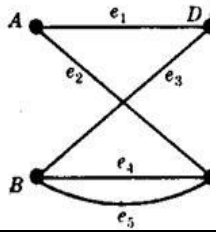
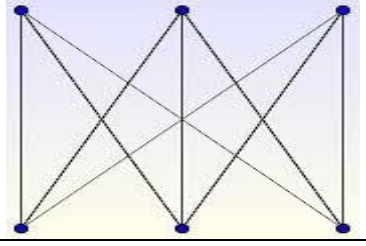
Categorization Rule Based on marks of Mid Sem. Exam

P - Premium: Above 22 marks
A - Average: Between 12 to 22 marks
C - Challenge: Below 12 marks

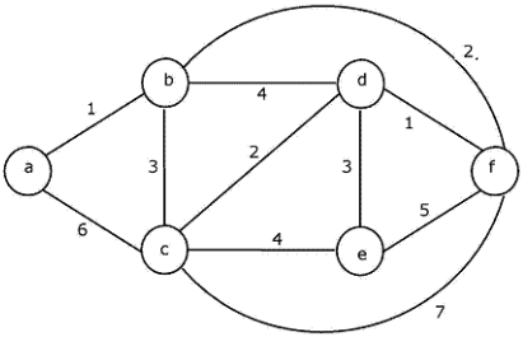
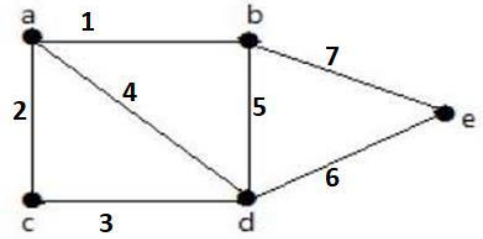
Assignment for Premium Students

No.	Questions
1.	Define the following with an example. (i) Euler graph (ii) Hamitonian graph (iii) Isomorphic graphs
2.	Define Spanning Tree and Draw 5 spanning tree of $K_{2,3.}$
3.	Prove that the $K_{3,3}$ is non-planar.
4.	Prove that every cut set in a connected graph G must contain at least one branch of every spanning tree.
5.	Derive fundamental cut-sets and fundamental circuit of following graph G with respect to spanning tree T.  G  T

Assignment for Average Students

No.	Questions
1.	Define the following with an example. (i) Complete graph (ii) Complete bipartite graph (iii) Regular graphs
2.	Define Binary Tree with example.
3.	State and prove the first theorem of graph theory.
4.	Prove that every cut set in a connected graph G must contain at least one branch of every spanning tree.
5.	Define edge and vertex connectivity and find the edge and vertex connectivity of the following graphs.   

Assignment for Challenged Students

No.	Questions
1.	Apply Kruskal's Algorithm and find the minimum weighted spanning tree of the following Graph. 
2.	Define Spanning Tree and Draw All possible spanning tree of K_4.
3.	Prove that a tree with n vertices has n-1 edges**.**
4.	State and Prove Euler's formula
5.	Prove that the complete graph with five vertices is non-planar.
6	Draw Complete graph K_5 and $K_{3,4}$ and find its adjacency matrix and Incident matrix
7.	Derive six different cut-sets of following graph. 
8.	Show that maximum number of edges in simple graph is n(n-1)/2.