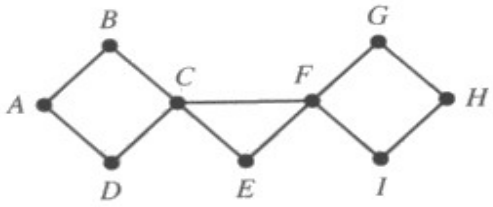
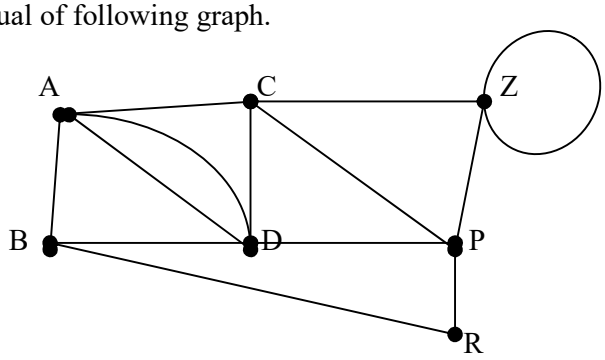
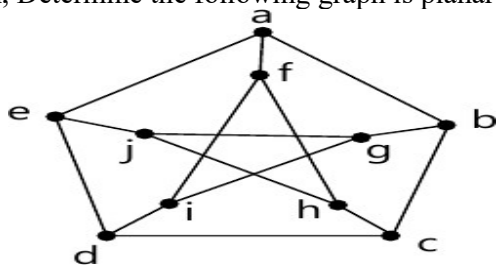
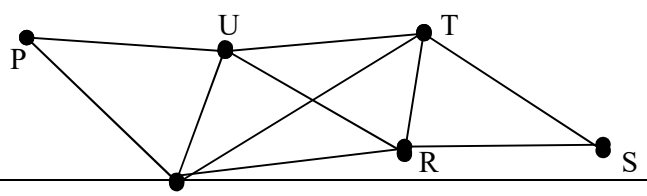
Assignment-1 & 2
(CSE/IT IInd Semester)
Subject Name: Graph Theory

Note: Each student will submit the hand written assignment.

	Assignment 01
(1)	Explain Chinese postman problem with suitable example and using Fluery`s algorithm, obtain an Eulerian circuit in the following graph. 
(2)	Obtain geometric dual of following graph. 
(3)	Prove that a connected graph G is an Euler graph if and only if all vertices of are of even degree.
(4)	State and derive the Euler`s formula for a planar graph.
(5)	Explain Traveling-Salesman problem with example and Prove that in a complete graph with n vertices have $(n-1)!/2$ different Hamiltonian circuits, if n is an odd number ≥ 3.
(6)	Using Kuratowski`s theorem, Determine the following graph is planar or non planar. 
	Assignment 02
(1)	Find chromatic polynomial of following graph. 

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(2)	Prove that a graph with at least one edge is 2-chromatic if and only if it has no circuit of odd length.
(3)	Prove that in every acyclic diagraph G has at least one vertex with zero in-degree and at least one vertex with zero out-degree
(4)	Prove that a n-vertex graph is tree if and only if its chromatic polynomial $is\ P_n\ (\lambda) = \lambda(\lambda - 1)^{n-1}$.
(5)	Prove that every complete tournament has a directed Hamiltonian path.
(6)	Prove that a diagraph is acyclic if and only if its vertices can be ordered such that the adjacency matrix of the graph is an upper (lower) triangular matrix.