Homework 5

EE/TE 4367: Telecommunications Networks

NOTE: **Please, complete the following table and keep record of your assignment number.**

First Name	
Last Name	
Student ID	
Assignment #	0

Exercise 1. Representing all the relevant intermediate steps, find a minimum weight spanning tree on the
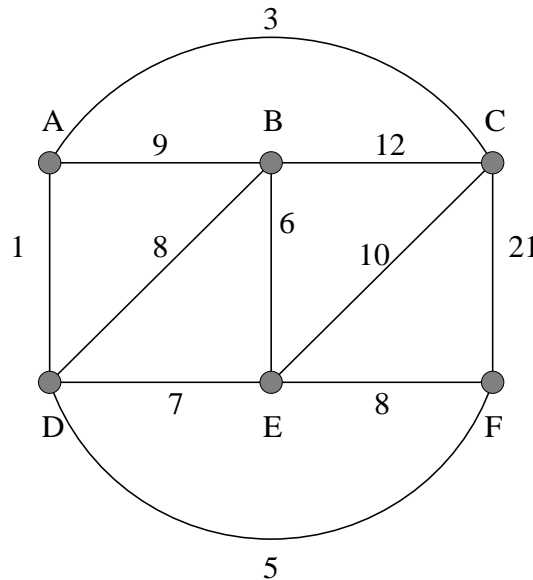

Figure 1: Undirected Graph.

graph shown in Fig. 1 using, respectively,

A) the Prim-Dijkstra algorithm choosing vertex B as the root vertex [pt. 10],

B) the Kruskal algorithm [pt. 10].

Exercise 2. Representing all the relevant intermediate steps, find a minimum weight spanning tree on the graph shown in Fig. 2 using, respectively,

A) the Prim-Dijkstra algorithm choosing vertex 1 as the root vertex [pt. 10],

B) the Kruskal algorithm [pt. 10].

Exercise 3. Representing all the relevant intermediate steps, find a minimum weight spanning tree on the graph shown in Fig. 3 using the following rule to break equal weight cases. When arcs have equal weight, the arc chosen is the one that has the minimum value of $ID_1 + ID_2$, where ID_1 and ID_2 are the node identifiers of the two nodes connected to the link.

A) Run the Prim-Dijkstra algorithm using vertex 6 as the root vertex [pt. 10].

B) Run the Kruskal algorithm [pt. 10].

C) Is the spanning tree found by the algorithms the only possible minimum weight spanning tree for the graph and the weights given? Please, explain your answer [pt. 5].
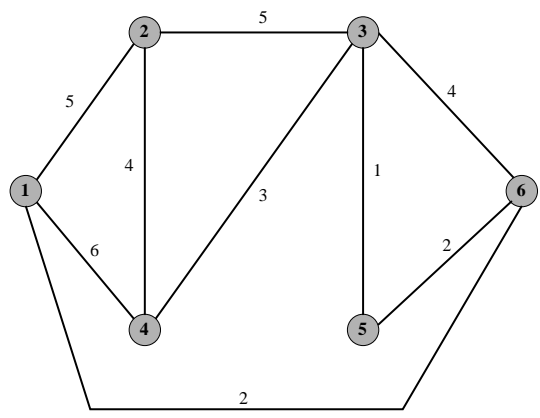
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Figure 2: Undirected Graph with six vertices and nine undirected edges.
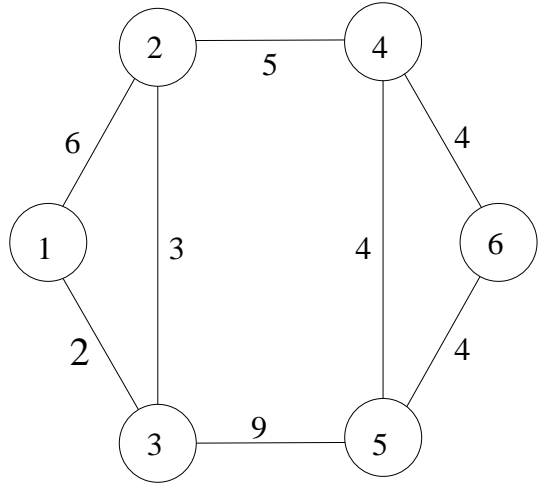

Figure 3: Undirected Graph with six vertices and eight undirected edges.