Homework Assignment #6 (Due Date: April 30)

Do the following problems:

(1) Find a topological sort for the graph shown in Fig. 1.

(2) Find the single-source shortest path solution from $s$ to all other vertices in Fig. 2. Show each step as in Fig. 9.28 in the textbook (or Lecture notes page 217).

(3) Find the minimum spanning tree using Prim’s algorithm for the graph shown in Fig. 3. Show each step as in Fig. 9.51 in the textbook (or Lecture notes page 229).

(4) Find the minimum spanning tree using Kruskal’s algorithm for the graph shown in Fig. 3. Show each step as in Fig. 9.59 in the textbook (or Lecture notes page 231).
(5) Produce a depth-first spanning tree for the graph in Fig. 4. Show as in Fig. 9.65 in the textbook (or Lecture notes page 236) the $Num(v)$ and $Low(v)$ for each vertex and identify all articulation points.

(6) Does the graph in Fig. 4 have an Euler Path or Euler Circuit? If it does, give the sequence of letters for it.