Sirindhorn International Institute of Technology

Thammasat University at Rangsit

School of Information, Computer and Communication Technology

ECS 203: Problem Set 4

Semester/Year: **2/2014**
Course Title: Basic Electrical Engineering
Instructor: Asst. Prof. Dr. Prapun Suksompong (prapun@siit.tu.ac.th)
Course Web Site: http://www2.siit.tu.ac.th/prapun/ecs203/

Due date: Feb 13, 5 PM

Instructions

1. Solve all problems. (5 pt)
2. ONE sub-question will be graded (5 pt). Of course, you do not know which part will be selected; so you should work carefully on all of them.
3. Late submission will be heavily penalized.
4. ***Write down all the steps*** that you have done to obtain your answers. You may not get full credit even when your answer is correct without showing how you get your answer.

Questions

1) [Alexander and Sadiku, 2009, Q3.18] Determine the node voltages in the circuit in Figure 1 using nodal analysis.

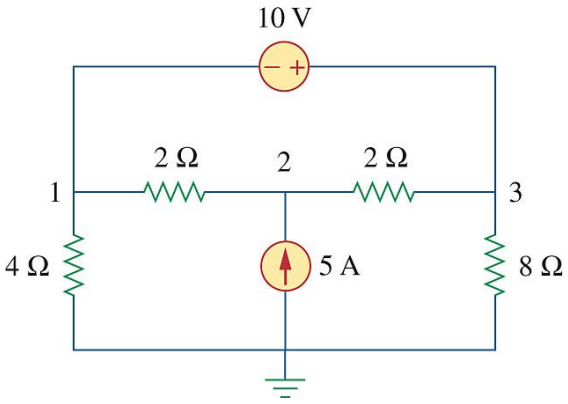

Figure 1

2) [Alexander and Sadiku, 2009, Q3.2] For the circuit in Figure 2, obtain v_1 and v_2 using nodal analysis.

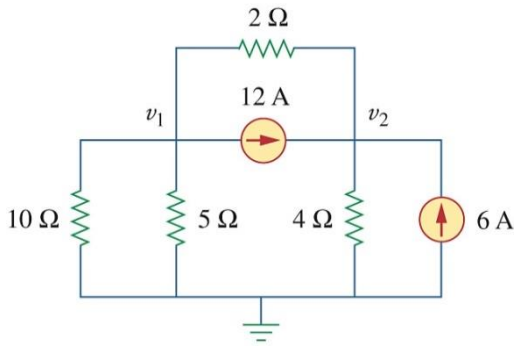

Figure 2

3) [Alexander and Sadiku, 2009, Q3.6] Use nodal analysis to obtain v_0 in the circuit in Figure 3.

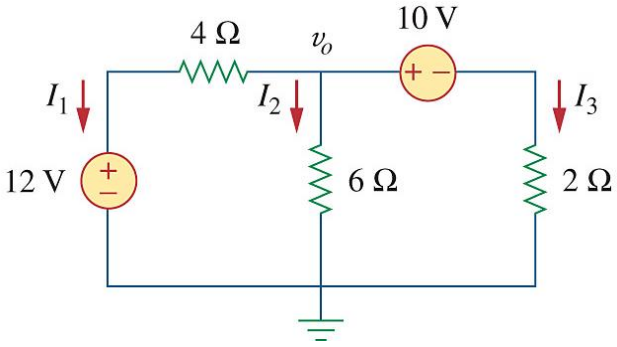

Figure 3

4) [Alexander and Sadiku, 2009, Q3.41] Apply mesh analysis to find i in Figure 4.

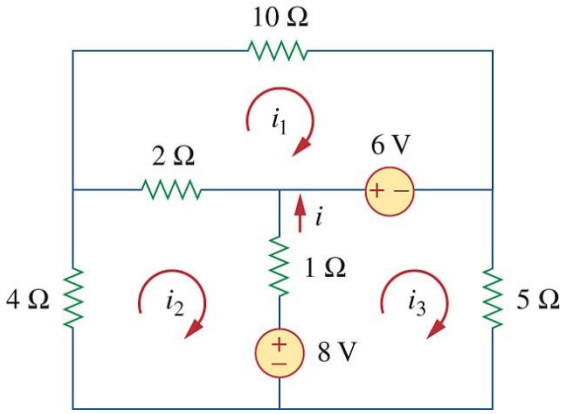

Figure 4

5) [Alexander and Sadiku, 2009, Q3.43] Use mesh analysis to find v_{ab} and i_o in the circuit in Figure 5.

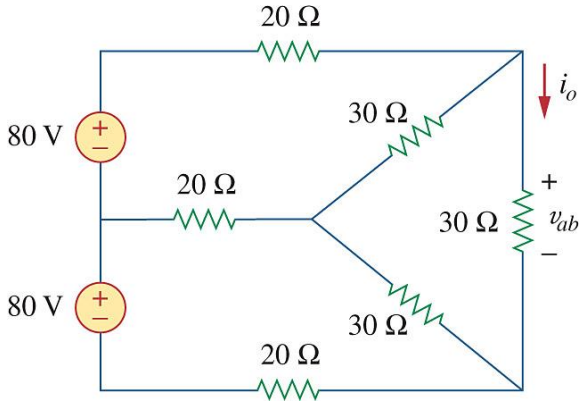

Figure 5

6) [Alexander and Sadiku, 2009, Q3.46] Use mesh analysis to solve for the mesh currents in Figure 6.

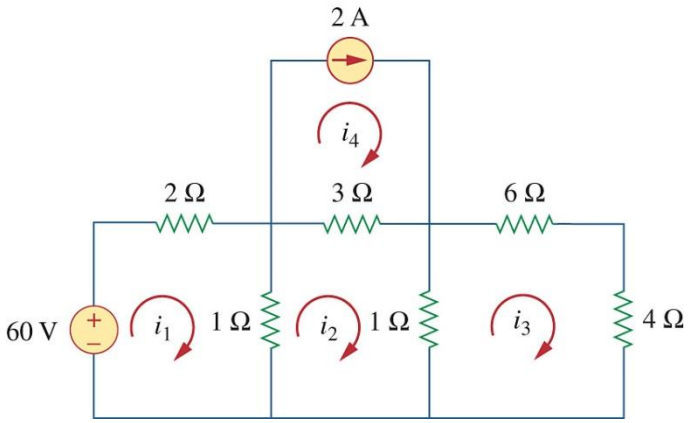

Figure 6