Quiz (V)

Finished by 17:20 on 5/31

Create a matlab script and change the filename to F7xxxxxxx_quiz5.m. Link all the programs solving following problems to this script. Make sure once type the filename' F7xxxxxxx_quiz5', the results of the following problems will pop-up automatically in order. For the written answers, type them done in a text file named "F7xxxxxxx_quiz5.txt". Remember not to type any 'clear all ', 'close all' command in any of the codes.

1. [F7xxxxxxx_quiz5_prob1.m] Given the following equation:

$$\begin{aligned} 4x_1 + x_2 - x_3 + x_4 &= -2 \\ x_1 + 4x_2 - x_3 - x_4 &= -1 \\ -x_1 - x_2 + 5x_3 + x_4 &= 0 \\ x_1 - x_2 + x_3 + 3x_4 &= 1 \end{aligned}$$

(a) Solve the equation using Gauss Elimination with Back Propagation.
[Output: "Prob1: The answer is [x.xxx, x.xxx, x.xxx, x.xxx] using Gauss Elimination]

(b) Write down the equation of iteration for Jacobi Method.

(c) Solve the equation using Jacobi Method.
[Output: "Prob1: The answer is [x.xxx, x.xxx, x.xxx, x.xxx] using Jacobi Method]
[Note: the printed result must represent its own precision]

(d) What are the x_1 to x_4 to start the iteration?

(e) How many times of iteration does it require to reach the printed solution?

==========Bonus==========

= {Bonus} Find the total current and the total resistance of the circuit. [F76xxxx_quiz5_prob2.m]

(a) Write down the loop equations.

(b) Print out the result and the method to solve the equation.
[Output: "Prob 2: The solution was done by xxx method. The total current is x.xxx A and the resistance is x.xxx ohm."]