Name:

ID:

PRINCIPLES OF EE1

Homework #1

Submission deadline: **October 2, 2024**

IMPORTANT: You should write on **A4 paper** that contains a full and detailed description of all the work done on the homework. Then you must submit the test hand-written by scanning and uploading the file in **PDF (one file only)** form on Blackboard (Assignment Session). Marks will be deducted if there are sign of violation of regulation and late submission (20% for each day).

Tip: You draw a bounding box or highlight for your final answer. Ex: Y = ABC + AC = $\boxed{ABC}$

Problem 1: **(20 marks)**

Apply KVL and KCL to find the value of i_x in the Figure 1.

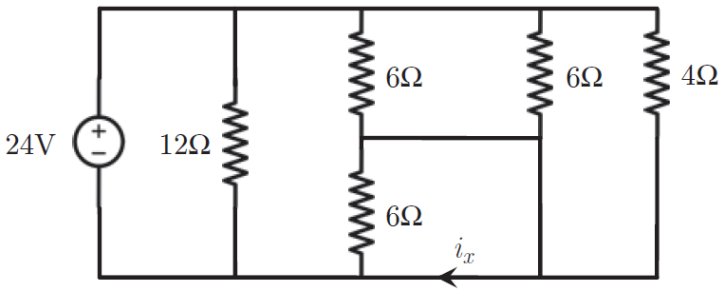

Figure 1

Problem 2: (20 marks)

Find the R_{eq} in the following circuits and then determine the value of i_x.

a/

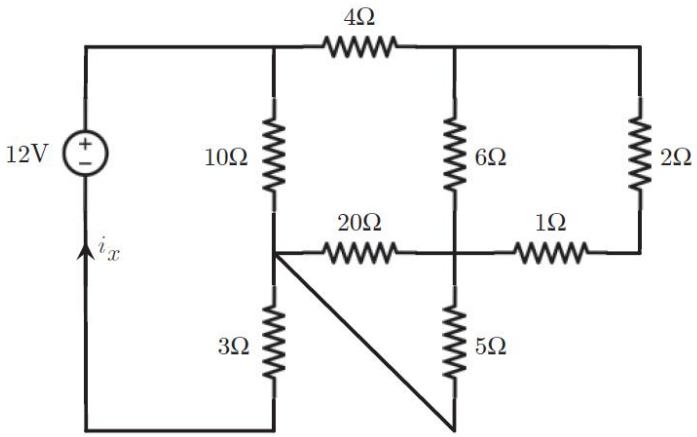

Figure 2.1

b/

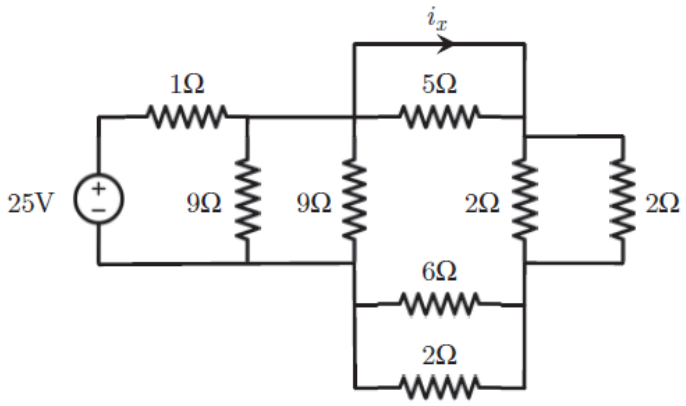

Figure 2.2

Problem 3: (20 marks)

Find the power of the device *D* in the Figure 3.

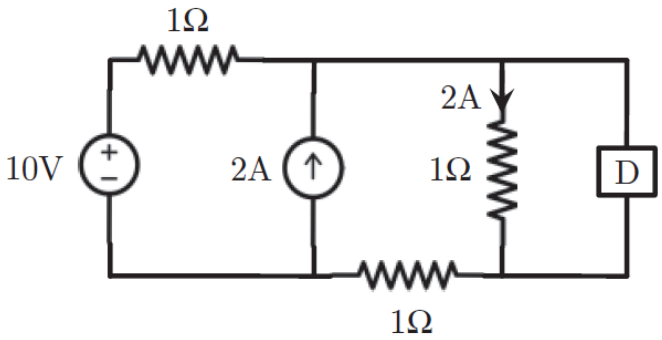

Figure 3

Problem 4: (20 marks)

Find the values of R_1, R_2, R_3 and R_4 if the source current is 16 mA in the Figure 4.

Hint: using voltage divider.

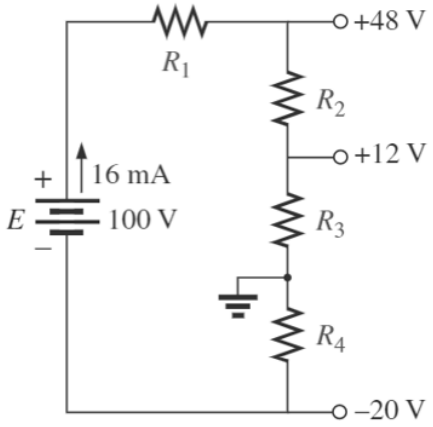

Figure 4

Problem 5: (20 marks)

In the Figure 5,

a. Redraw the circuit with a Y (Wye) configuration.
   Hint: Delta to Wye transformation
b. Determine I_s

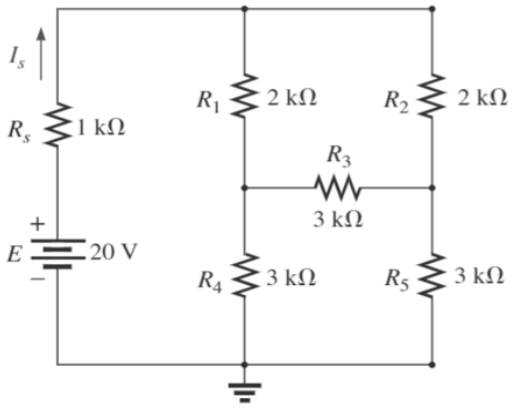

Figure 5