Sirindhorn International Institute of Technology
Thammasat University at Rangsit
School of Information, Computer and Communication Technology

Practice Midterm Exam

COURSE : ECS210 Basic Electrical Engineering Laboratory
INSTRUCTOR: Dr. Prapun Suksompong
TIME : _____ (45 minutes per subsection)
PLACE : BKD 3502

Name			ID	
Section		☐ 9 AM ☐ 1 PM	Bench#	

Instructions:

1. This is a practice exam for the midterm examination.
2. **Read these instructions and the questions carefully**.
3. Closed book. Closed notes.
4. No calculator.
5. For the problems that ask for TA's signatures, lack of the signature(s) means no credit for the whole problem. Having the signatures mean that the values recorded are the same as the values measured. These signatures do not guarantee that you have the correct answers.
6. No TA's signature = 0 for the whole part.
7. Allocate your time wisely. Some easy questions give many points.
8. Do not cheat. The use of communication devices including mobile phones is prohibited in the examination room.
9. The TAs will not help you debug your circuit.
10. Record *at least two decimal places* from the DMM. Do not write 12 mA when you see 12.00 mA on the DMM's display.
11. Write your **first name** and the **last three digits** **of your ID** on each page of your examination paper, starting from page 2.
12. For the actual exam,
    a. group a: 1:15 – 2:00 PM
       group b: 2:15 – 3:00 PM
    b. arrive at least 5 minutes early
    c. do not leave the exam room until the end of the allotted time.
13. Clean your desk/bench before you leave the exam room.
14. Do not panic.

ID	Group
5222770950	a
5222771164	b
5222780082	a
5222780256	b
5222780272	b
5222780363	a
5222780892	b
5222781387	b
5222781486	a
5222781510	b
5222781577	b
5222781619	b
5222781718	b
5222781825	a
5222781999	a
5222782161	a
5222782401	b
5222782427	a
5222790362	a
5222790479	a
5222790867	b
5222791030	b
5222791097	a
5222791253	a
5222791493	b
5222792129	b
5222792764	a
5222800138	a
5222800302	a
5222800658	b

Name_____ ID_____

Consider the circuit in Figure 1.

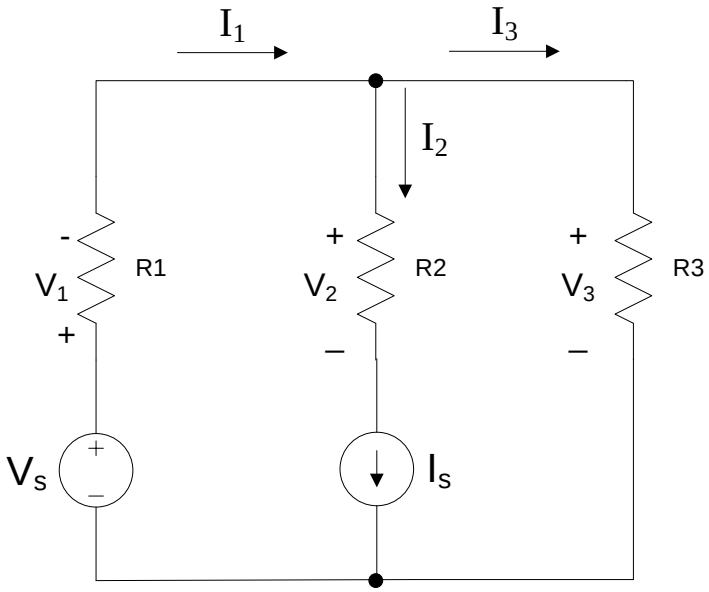

Figure 1

Let R_1= 820 Ω, R_2 = 1.2 kΩ, and R_3 = 2.2 kΩ, V_S = 15 V, I_S = 12 mA

1. Measure the exact values of R_1 to R_3.

R_1 =_____ R_2 =_____ R_3 =_____

2. Connect the circuit in Figure 1. Record the exact values of V_S and I_S.

V_S =_____ V I_S =_____ A

Ask any lab supervisor to witness your measurement of I_S. Obtain his/her signature.

Signature for I_S _____

(Having the signatures mean that the value recorded are the same as the value measured. This does not guarantee that you have the correct answer.)

3. Measure voltage and current in the following table.

Only V_S is active (24 pt.)				Only I_S is active (6 pt.)				Both V_S and I_S are active (6 pt.)			
I_1		V_1		I_1		V_1		I_1		V_1	
I_2		V_2		I_2		V_2		I_2		V_2	
I_3		V_3		I_3		V_3		I_3		V_3	

Watch out for the signs and the units. Ask any lab supervisor to witness your measurement of V_3 for the case that only I_S is active. Obtain his/her signature.

Signature for V_3 _____

4. Find the Thevenin equivalent circuit at R_3 by considering R_3 as a load. Show the lab supervisor your *measurement* and obtain his/her signatures.

Name_____ ID_____

V_{TH} = _____ R_{TH} =_____

Signature for V_{TH} _____ Signature for R_{TH} _____

5. Draw the Thevenin equivalent circuit. Show the numerical values in your drawing.

6. Draw the Norton equivalent circuit. Show the numerical values in your drawing.