Sirindhorn International Institute of Technology

Thammasat University at Rangsit

School of Information, Computer and Communication Technology

Practice Problems for Midterm Exam

COURSE : ECS204 Basic Electrical Engineering Laboratory
INSTRUCTOR: Asst. Prof. Dr. Prapun Suksompong
TIME : 60 minutes per session
PLACE : BKD 3502

Name		ID	
Session	☐ a ☐ b ☐ c ☐ d	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. Fill out the form above.
6. Today, you do not need any TA signature.
   However, for the actual exam, for the problems that ask for TA's signatures, lack of the signature(s) means ***no credit for the whole part***. Request the TA to sign you answer again if you decide to change your answer later. 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.
7. Allocate your time wisely. Some easy parts give many points.
8. The TAs will not help you debug your circuit.
9. Units are important.
10. When possible, 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. Do not forget to 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: 9:30 – 10:30 AM
       group b: 10:40 – 11:40 AM
       group c: 1:30 – 2:30 PM
       group d: 2:40 – 3:40 PM
    b. arrive at least 10 minutes early
    c. do not leave the exam room until the end of the allotted time.
13. Organize items on your desk/bench before you leave the exam room.
14. Do not cheat. The use of communication devices including mobile phones is prohibited in the examination room.
15. Do not panic.

Sec 1			Sec 2	
5422780759	b		5422800680	c
5622780153	a		5622770659	d
5622780427	a		5622770733	c
5622780609	a		5622772093	c
5622781359	a		5622780237	d
5622781565	a		5622780260	d
5622790129	b		5622780310	c
5622790194	a		5622780344	d
5622790244	b		5622780526	c
5622790251	a		5622780799	d
5622790301	a		5622780856	c
5622790566	b		5622780898	d
5622791192	b		5622780906	d
5622791812	a		5622781003	d
5622791838	b		5622781227	d
5622791846	b		5622781615	d
5622792182	a		5622781748	c
5622792281	b		5622782019	c
5622792349	a		5622790582	d
5622792604	b		5622790723	c
5622792950	a		5622790731	c
5622793172	b		5622791424	c
5622793826	b		5622791549	d
5622795012	b		5622791580	c
5622795137	b		5622792067	d
5622795319	a		5622792315	d
5622795459	a		5622792331	d
5622795483	b		5622792455	d
5622795681	a		5622792497	c
5622795723	a		5622792521	c
5622800100	b		5622792539	c
5622800118	b		5622793040	c
5622800472	b		5622793313	c
			5622793578	d
			5622793800	d
			5622794923	c

Name_____ ID_____

Consider the circuit in Figure 1.

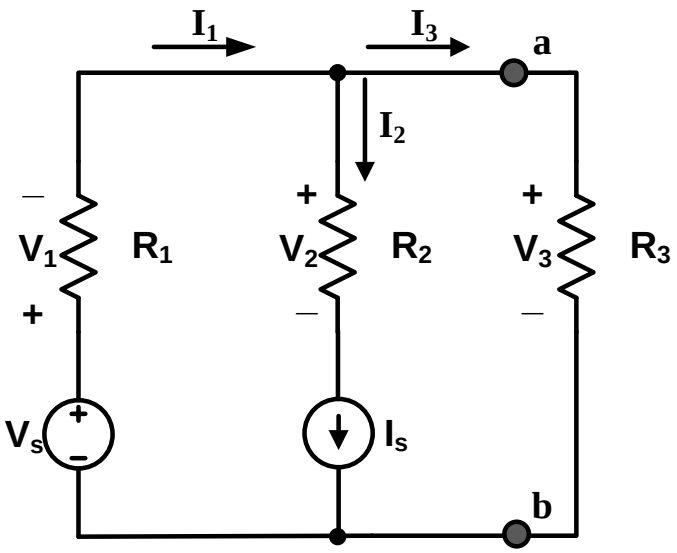

Figure 1

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

Measure the exact values of R_1 to R_3.

R_1 =_____ R_2 =_____ R_3 =_____

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

V_S =_____ I_S =_____

Ask a proctor to witness your measurement of I_S. Obtain his/her signature.

Signature for I_S _____

Measure voltage and current in the following table.

Only V_S is active				Only I_S is active				Both V_S and I_S are active			
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 proctor to witness your measurement of V_3 for the case "both V_S and I_S are active". Obtain his/her signature.

Signature for V_3 _____

Name_____ ID_____

Find the Thevenin equivalent circuit of the circuit shown in Figure 1, to the left of the terminals a-b (considering R_3 as the load). Ask a proctor to witness your *measurement* and obtain his/her signatures.

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

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

Draw the Thevenin equivalent circuit along with its load R_3. ***Show*** the ***numerical*** values of all circuit elements in your drawing.

Directly measure the Norton current (I_N) from the circuit shown in Figure 1, to the left of the terminals a-b (considering R_3 as the load). Ask a proctor to witness your *measurement* and obtain his/her signatures.

I_N = _____ Signature for I_N _____

Draw the Norton equivalent circuit along with its load R_3. ***Show*** the ***numerical*** values of all circuit elements in your drawing.