

## LAB A-01(Week1)

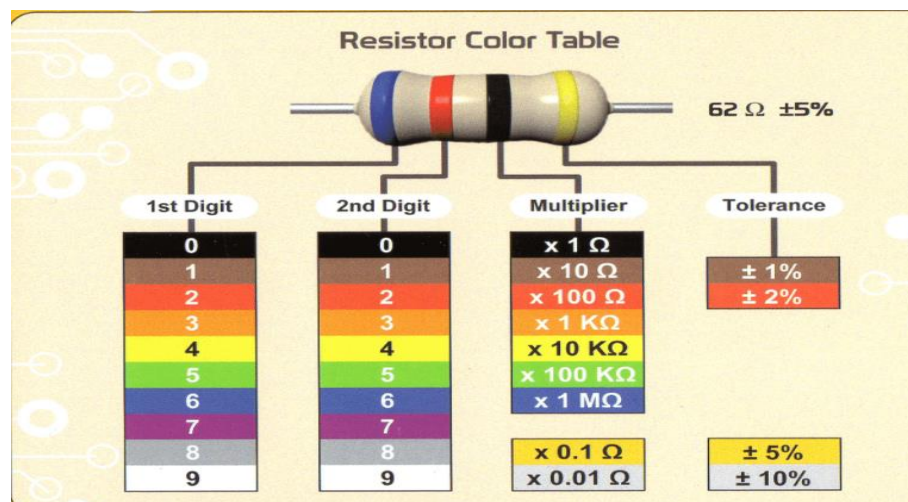
### Objectives:

- To get familiarity with the basic operation/function of resistors, LEDs, and breadboard by performing the following experiments.
- To get familiarity with digital system simulator -- CircuitVerse.

### I. RESISTORS:

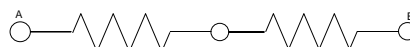
#### 1. Identification of the value of Resistor with color codes

Color	First Stripe	Second Stripe	Third Stripe	Fourth Stripe (Tolerance)
Black	0	0	x1	
Brown	1	1	x10	
Red	2	2	x100	
Orange	3	3	x1,000	
Yellow	4	4	x10,000	
Green	5	5	x100,000	
Blue	6	6	x1,000,000	
Violet	7	7		
Grey	8	8		
White	9	9		
Gold				5%
Silver				10%



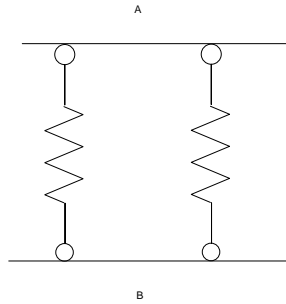
#### 2. Rule for Series Connection of Resistors:

When two resistors are connected in series, the new resistance between points A and B will be ( $R_1 + R_2$ ).



### 3. Rule for Parallel Connection of Resistors:

When two resistors are connected in parallel, the new resistance between points A and B is  $(R1 \times R2) / (R1 + R2)$ . (R1



## II. LEDs (Light Emitting Diodes):

### 1. Identification of the sides of an LED:

The leg that is longer is positive side of the LED.

### 2. Need for a resistance:

In a diode, current can flow in only one direction. When the LED is on, there is a 1.4 volt drop across it. Since LED has very little resistance, an external resistor is needed to limit the large amounts of current flow through LED else LED will burn out.

### 3. How to make the connection:

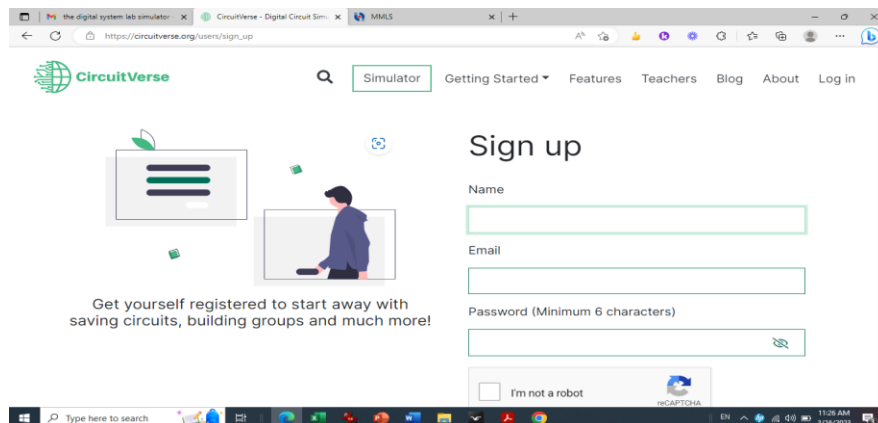
The positive leg of LED can be connected to a resistor and the other end of the resistor to +5V

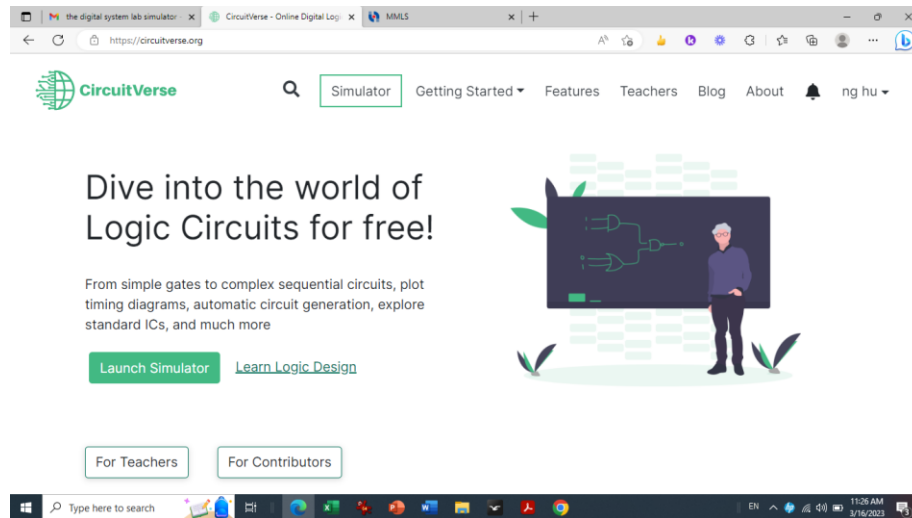


and the negative leg can be connected to the ground.

4.

a) visit <https://circuitverse.org/> . Sign up as new user with MMU student MS email address (example: 112220000@soffice.mmu.edu.my). Do remember your password.

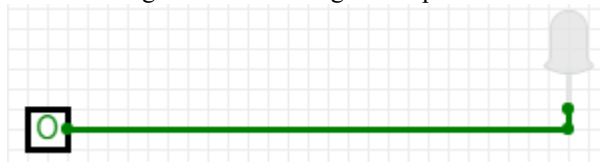




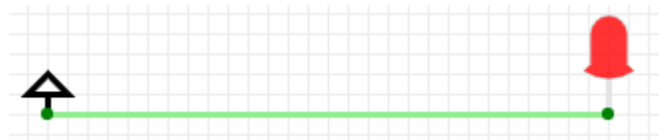
b) Construct the circuit as shown in Figure below. Press the button to turn on the LED.



c) Construct the circuit as shown in Figure below. Change the input to “1” to turn on the LED.



d) Construct the circuit as shown in Figure below. The Power source is always turn on the LED.



5. Fill up your name and email address to the google spreadsheets that shared by your respective lecturer

K3																			
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O				
1																			
2			Lecturer Table				TT 2L Grouping												
3																			
4			Name		Email address														
5		Group 1					Group 2				Group 3				Group 4				
6																			
7																			
8		Group 5					Group 5				Group 7				Group 8				
9																			
10																			
11		Group 9					Group 1				Group 11				Group 12				
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14		Group 13					Group 14				Group 15				Group 16				
15																			
16																			
17		Group 17					Group 18				Group 19				Group 20				
18																			
19																			
20																			

6. In week 2, students can find the assignments as lab report submission the assignment module. Press “start your work” or “view your work” to do circuit construction.

Name	DeadLine	Grading	Actions	Grade
LabA_02	Fri Mar 17 2023 23:30:00 GMT+0800 (Singapore Standard Time) (Time remaining: 1 days 7 hours 56 minutes)	Not Graded	<a href="#">View</a> <a href="#">View your Work</a>	N.A.
Assignment (Part A)	Thu Mar 23 2023 12:19:00 GMT+0800 (Singapore Standard Time) (Time remaining: 6 days 20 hours 45 minutes)	Not Graded	<a href="#">View</a> <a href="#">Start Working</a>	N.A.

7. Launch the simulator by clicking the simulator button.

Untitled

0 Stars 1 Views

Author: ng\_hu

Project access type: Private

Updated: 3 hours ago

[Launch Simulator](#) [Create Copy](#)

8. Name your circuit construction by referring to the questions.

Question 1 a) x +

CIRCUIT ELEMENTS

Search...

Input

Output

Gates

Decoders & Plexers

Sequential Elements

Annotation

TIMING DIAGRAM

Properties

PROJECT PROPERTIES

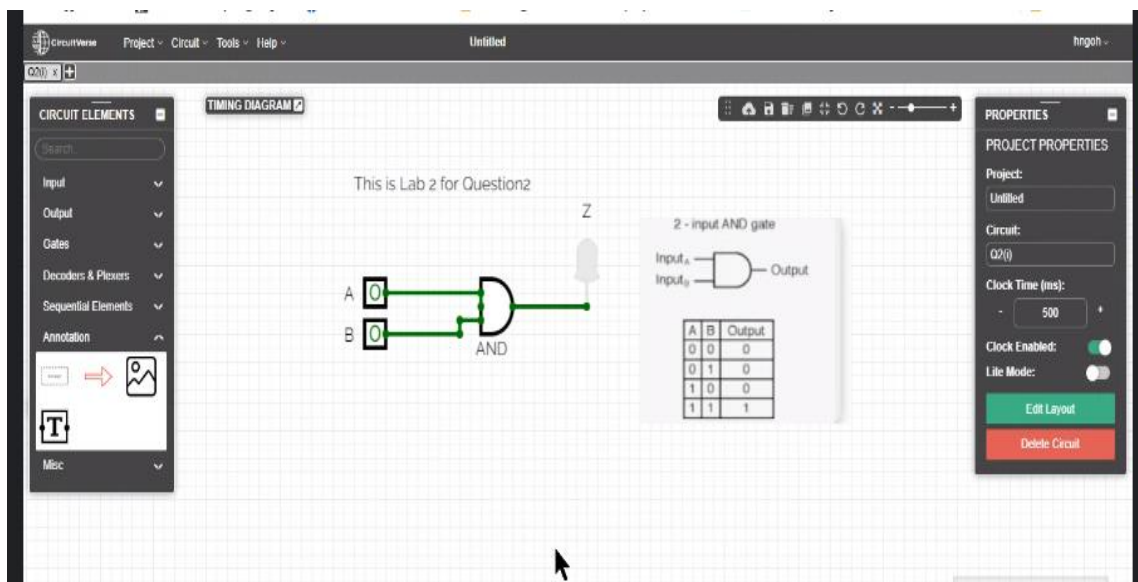
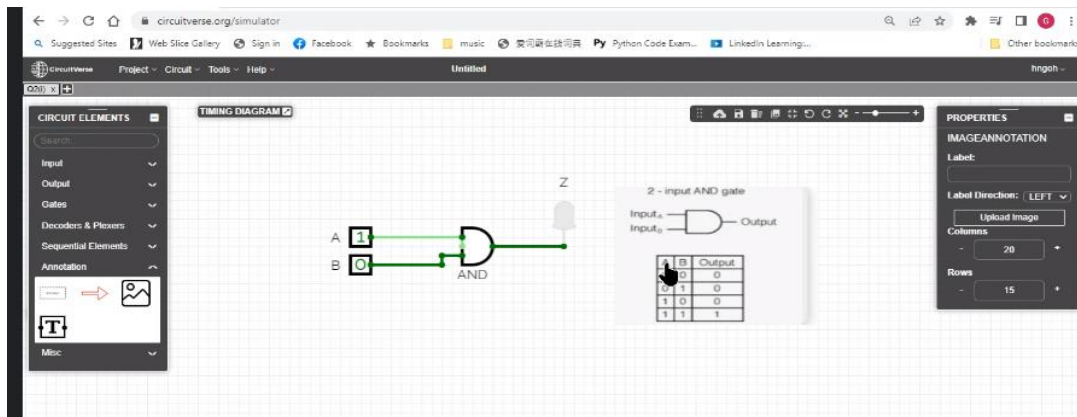
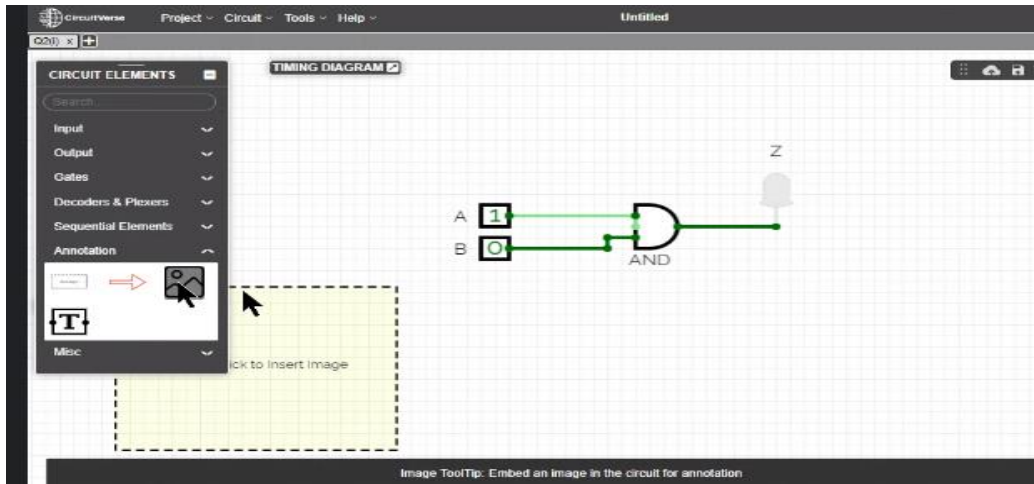
Project: Untitled

Question 1 a)

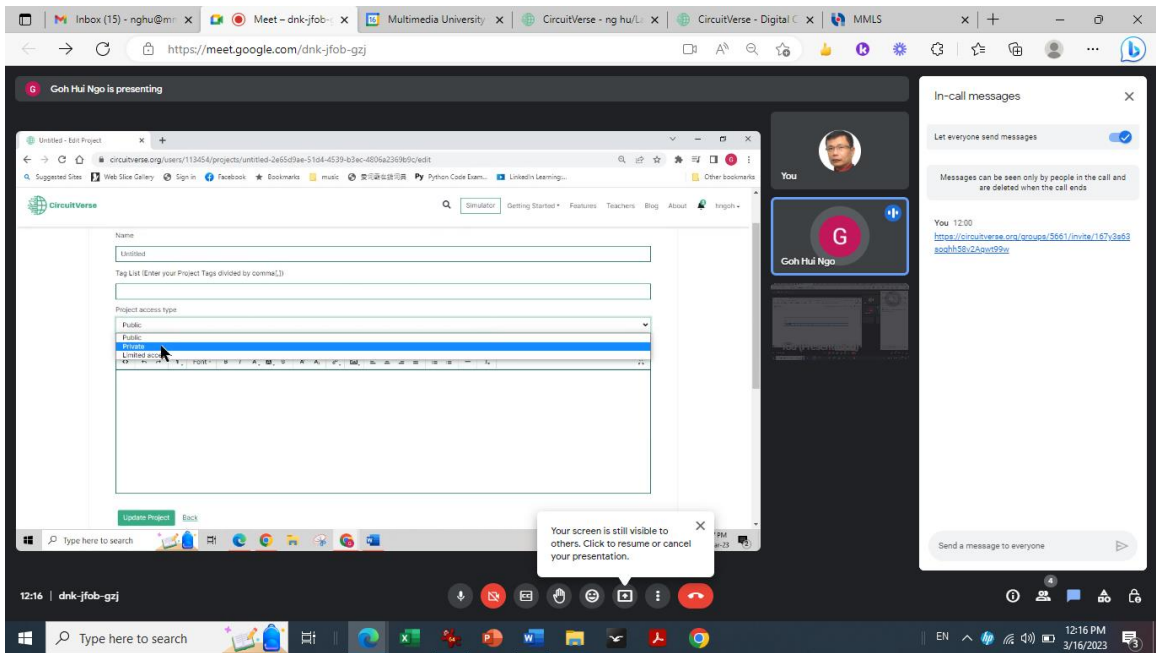
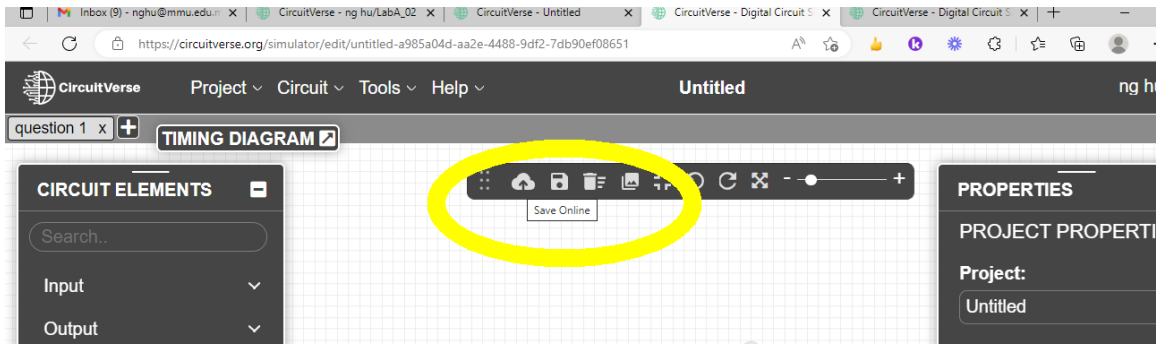
Clock time (ns): 500

Clock Enabled: ☒

9. For each circuit construction, do label each of the component with tally on the truth table (student attaches it using the tools available).



10. Save your work by clicking the “save online” button. Do make sure , it is under “Private”.



Browser tabs: Inbox (15) - nghu@mi, Meet - dnk-job-..., Multimedia University, CircuitVerse - ng hu/Li, CircuitVerse - Digital C, MMLS

Address bar: <https://meet.google.com/dnk-jfob-gzj>

Meeting header: Goh Hui Ngo is presenting

Browser window (CircuitVerse):

- Submissions:
- Wang Chao-Miao
- Simulation
- Getting Started
- Features
- Teachers
- Blog
- About
- English

Diagram description: A circuit diagram showing a sequence of logic gates (AND, OR, NOT) connected to a final output. The diagram is titled "CircuitVerse - ng hu/Li".

Notification: Your screen is still visible to others. Click to resume or cancel your presentation.

Right sidebar:

- In-call messages
- Let everyone send messages
- Messages can be seen only by people in the call and are deleted when the call ends
- You 12:00
- <https://circuitverse.org/groups/5661/invite/167c3ef3e0b158c24e0v22w>
- Send a message to everyone

Windows taskbar: 12:18 | dnk-jfob-gzj