Mini Project 4
Marks 15%

Session 2019/2020 Sem 1

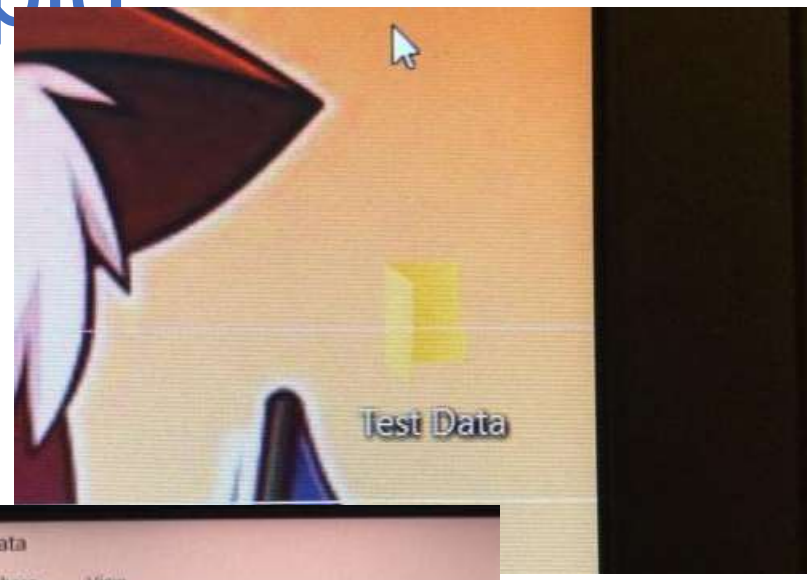
Step 1 Winculp Installation to Laptop

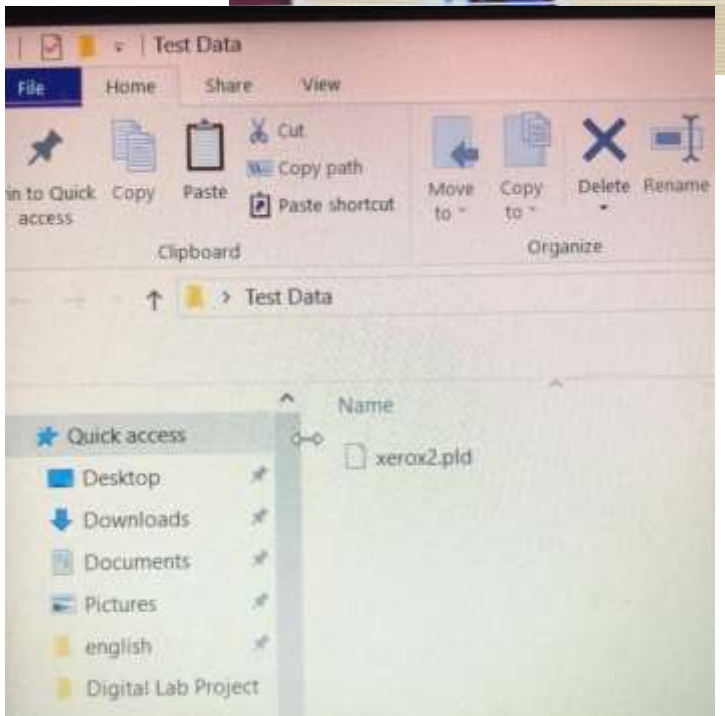
- The yellow circle is the WinCulp apps. Double click the icon and a dialog box is appeared.
- Entered the Serial Number for WinCUPL : **60008009**, and click OK

Step 2 Download the file “xerox2.pld”

- https://drive.google.com/file/d/1Yb-zEtg1ABq5iK5xmmHVvttuMlDkPaPF/view?usp=sharing
- Download the file “xerox2.pld” from the above link, and then create a folder name “Test Data” in your DESKTOP laptop.
- Remove the “xerox2.pld” into the folder “Test Data” .
- “xerox2.pld” is a programming of photocopy machine using 2 bit and consists of four state:

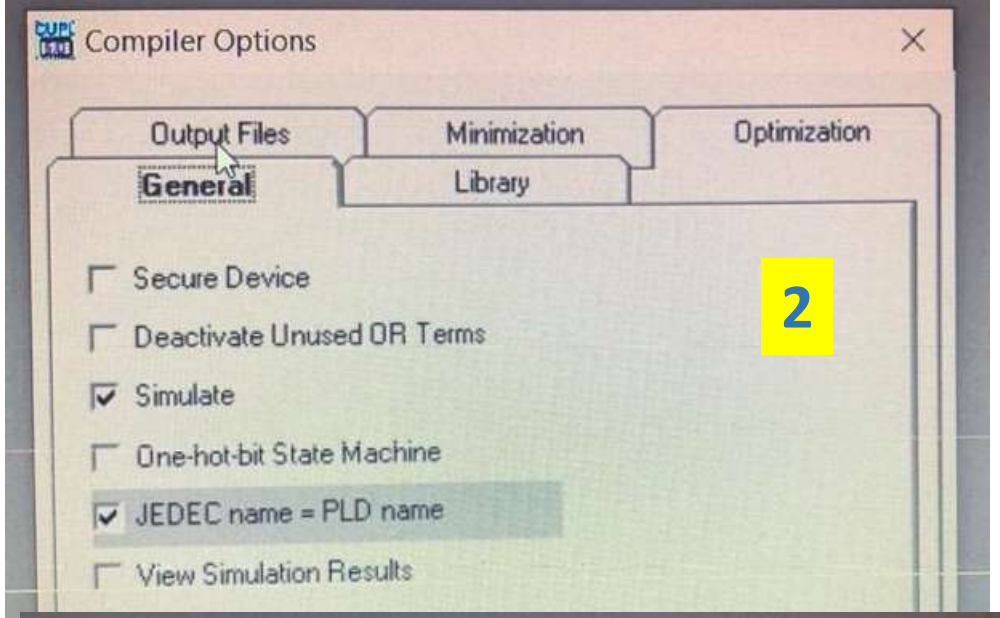
  00 01 10 11 (binary) similar to 0 1 2 3 (dec)

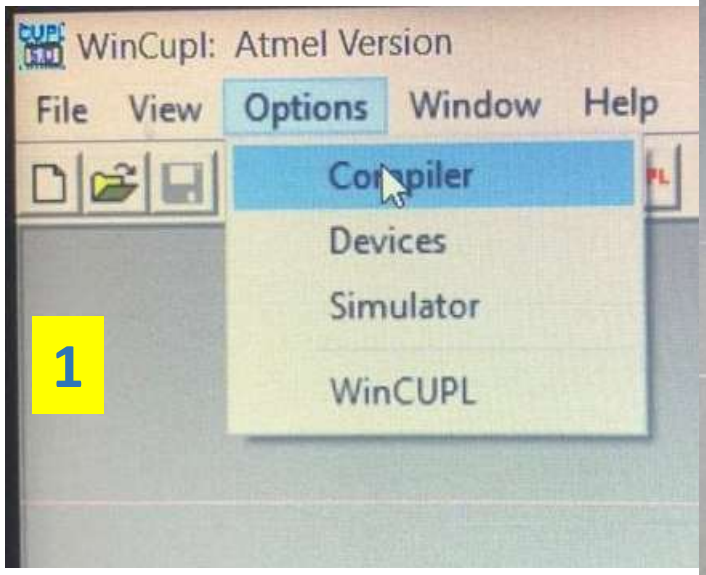


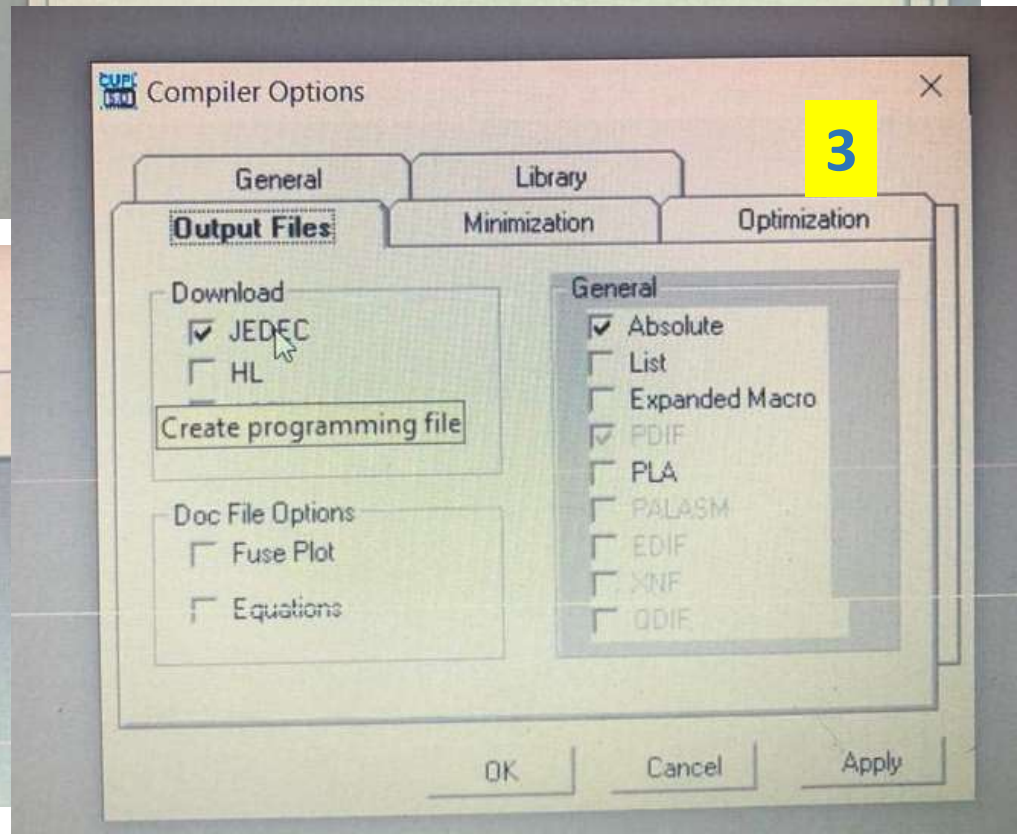


Step 3 Open the Winculp

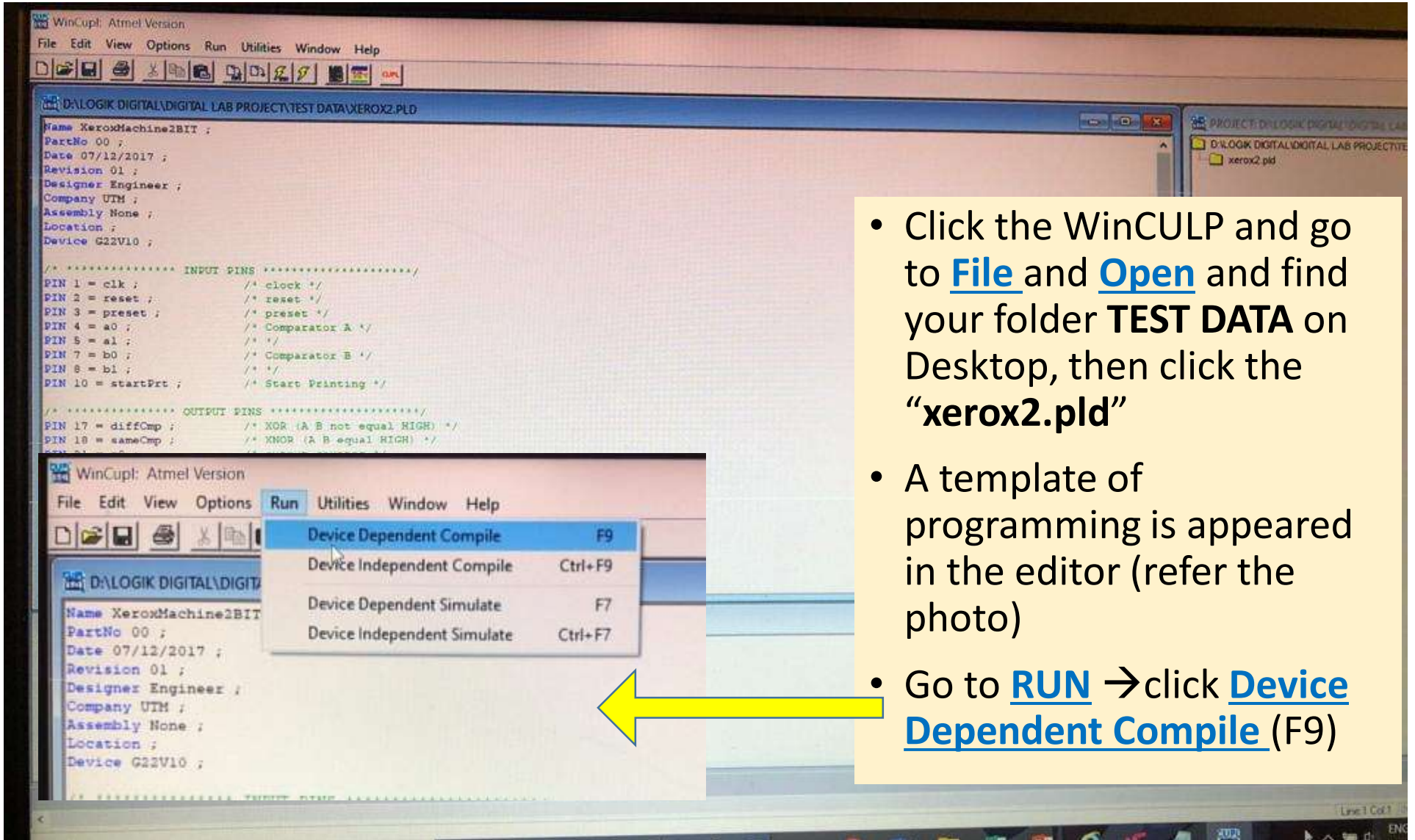
- Follow the steps given (refer to the photo)







Step 4 Open the xerox2.pld



- Click the WinCULP and go to **File** and **Open** and find your folder **TEST DATA** on Desktop, then click the "**xerox2.pld**"
- A template of programming is appeared in the editor (refer the photo)
- Go to **RUN** →click **Device Dependent Compile** (F9)

Step 5 Run the file

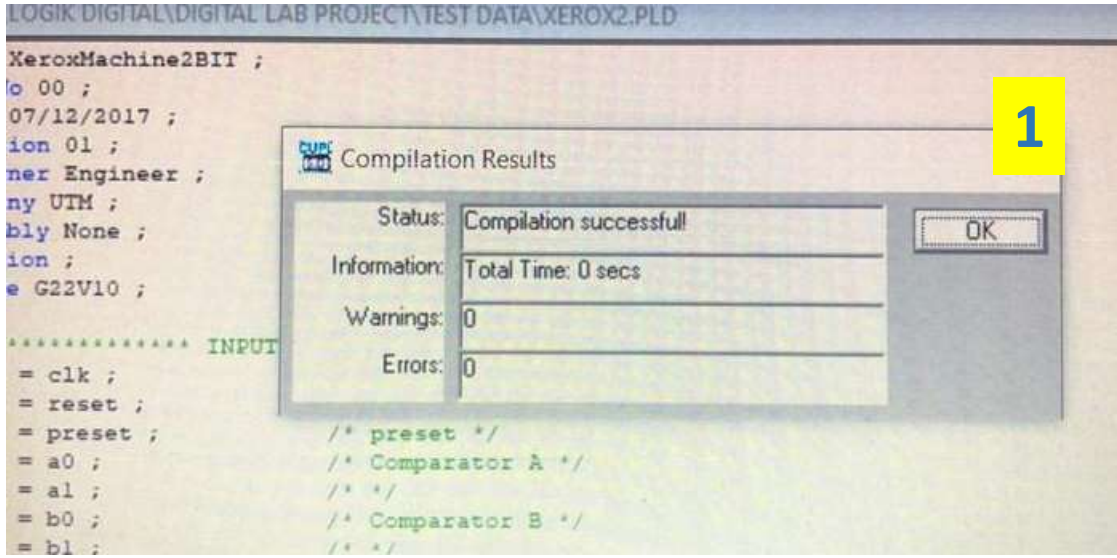
- A dialog box is appeared after run (refer photo 1).
- A listed of files with same name and different extension are appeared on the right editor (refer photo 2).
- The three file are:

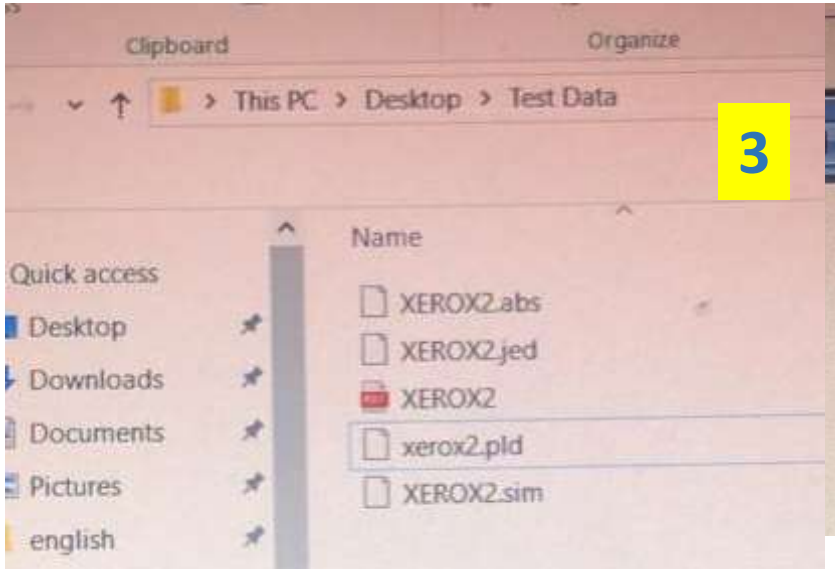
  XEROX2.abs

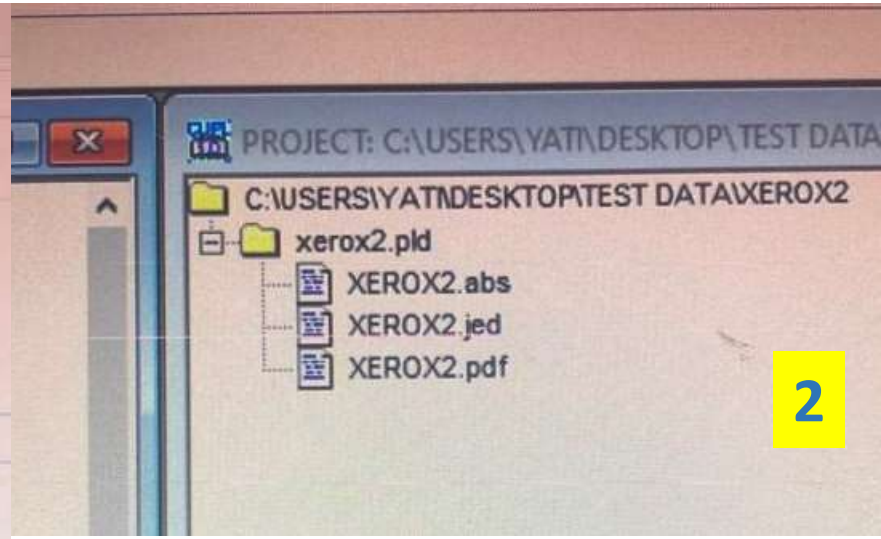
  XEROX2.jed

  XEROX2.pdf

- Open folder **TEST DATA** and check the new files (refer photo 3)







Step 6 WELLON PROGRAMMER

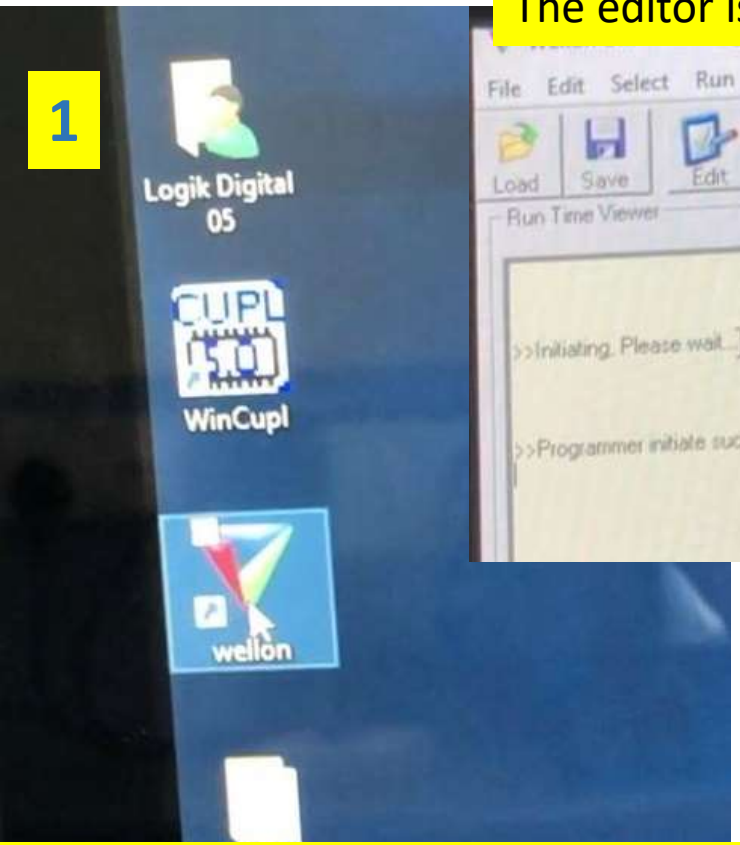
Finish WinCULP, and continue with WELLON PROGRAMMER

This sofware only available and provided in the the lab.

Please refer to book on pages **404-408**.

Steps Using WELLON PROGRAMMER

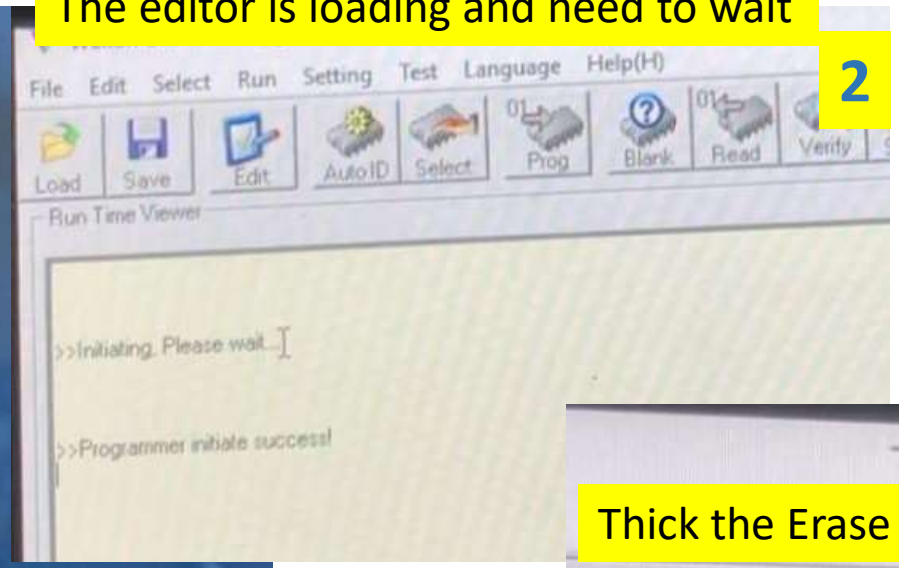
1



Double click the Wellon icon to open

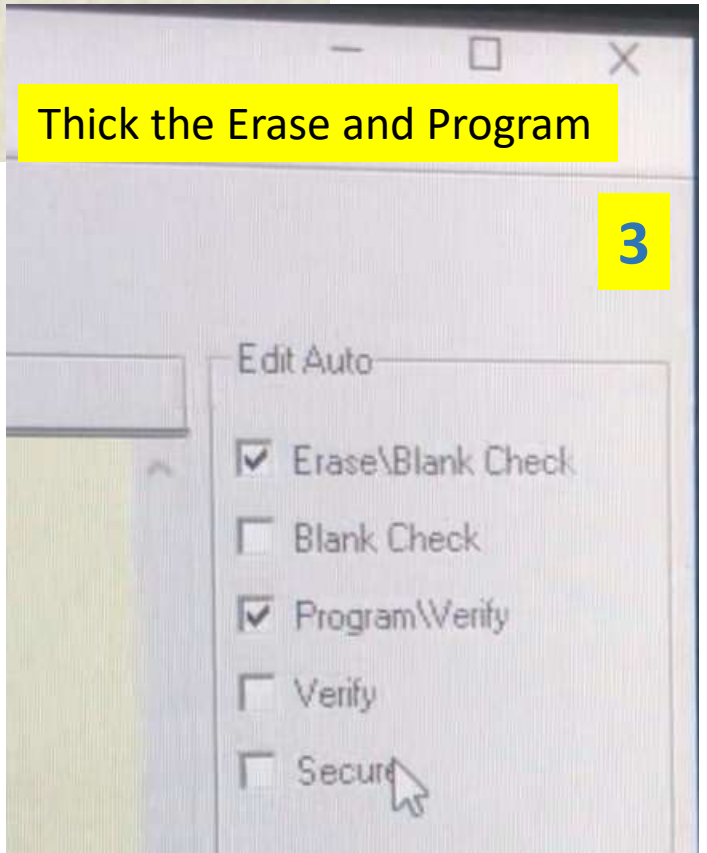
The editor is loading and need to wait

2



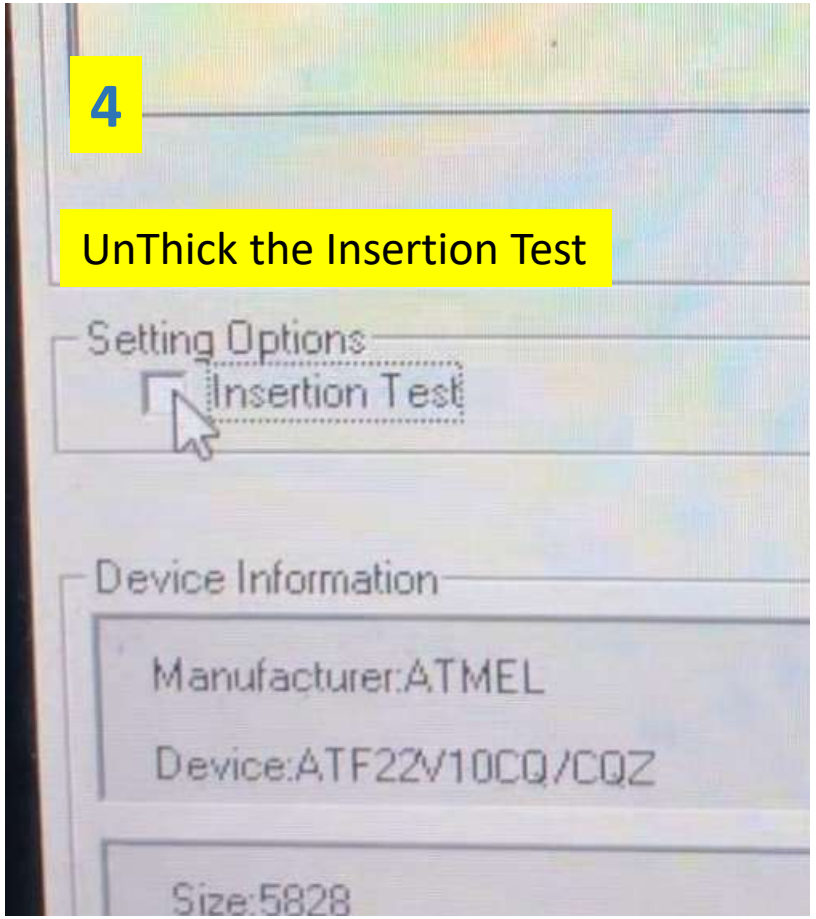
Thick the Erase and Program

3



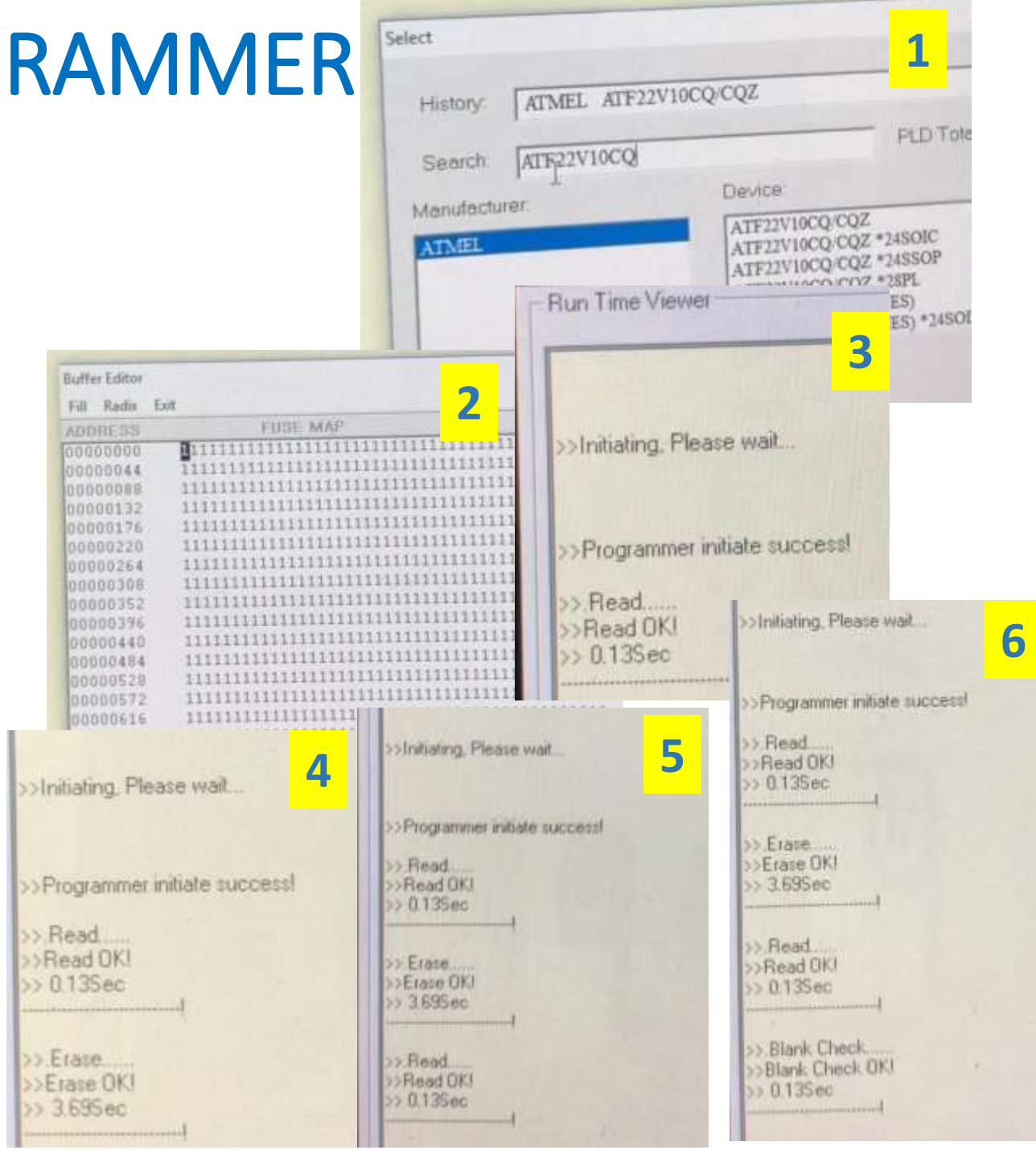
4

UnThick the Insertion Test



Steps Using WELLON PROGRAMMER

- Click SELECT and release your finger from mouse and choose **AMTEL** from Manufacturer Box, type **ATF22V10CQ** in Search box and then click **ATF22V10CQ/CQZ** from Device Box, and click OK (photo 1)
- Click READ and release your finger (photo 2)
- Click EDIT and release your finger (photo 3)
  - Buffer editor appeared (photo 3) and then close the Buffer editor.
- Click ERASE and release your finger (photo 4)
- Click READ and release your finger (photo 5)
- Click BLANK and release your finger (photo 6)



Steps Using WELLON PROGRAMMER

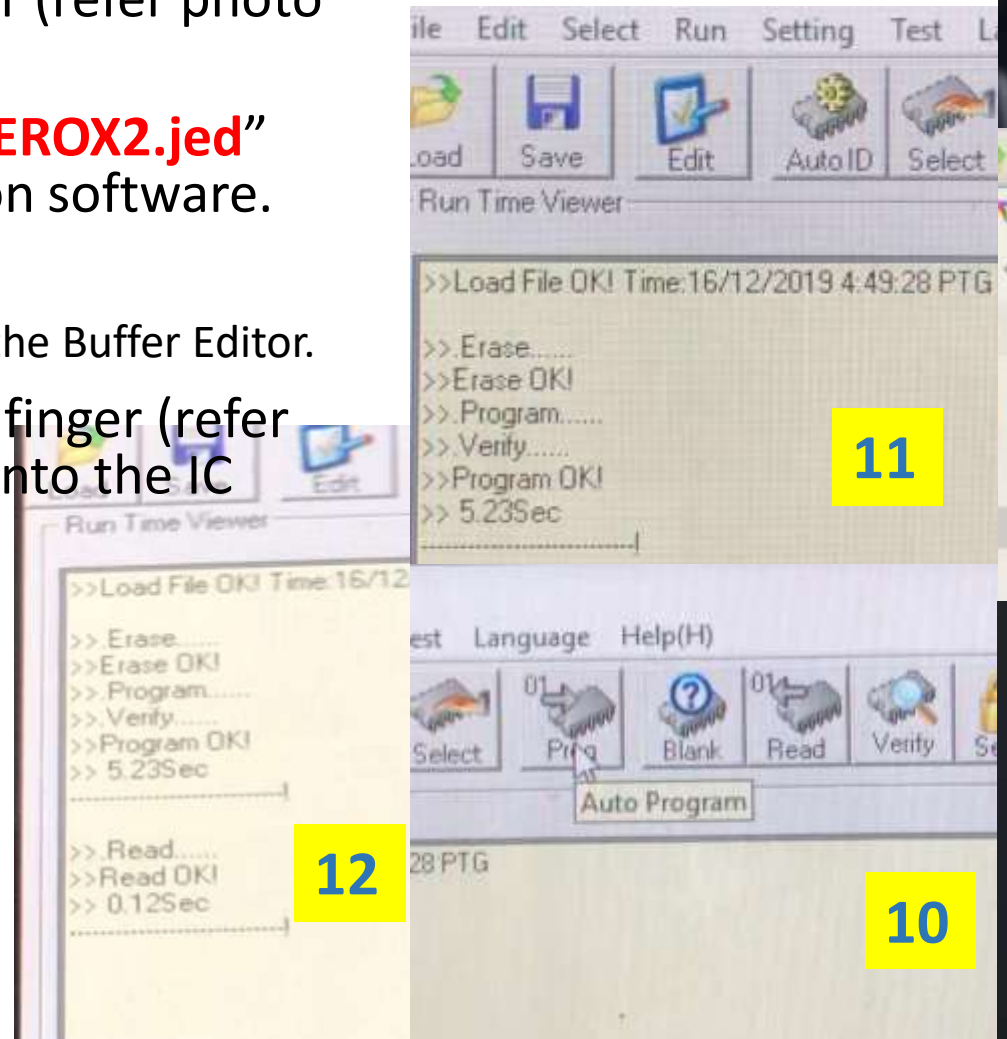
- Click EDIT and release your finger
  - Buffer Editor appeared, then Close the Buffer Editor.
- Click LOAD and release your finger (refer photo 7-9),

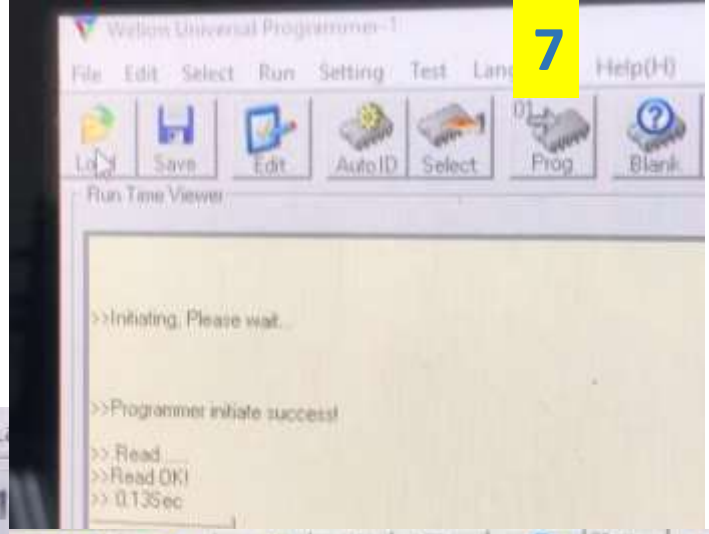
go to folder **TEST DATA** and click "**XEROX2.jed**" and the file is loaded into the Wellon software.

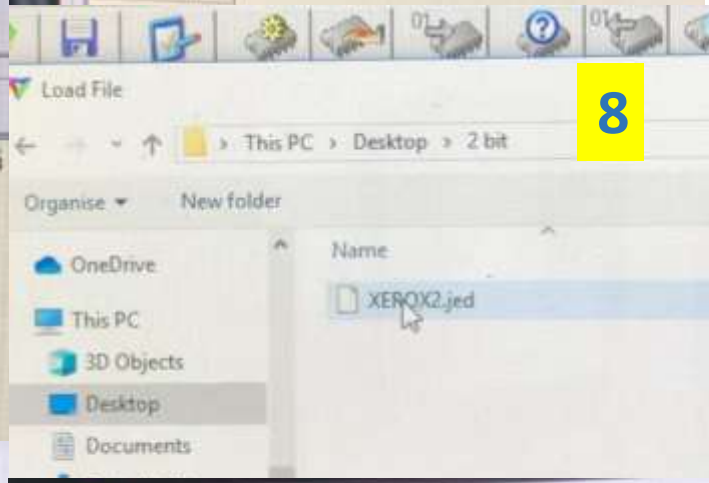
- Click EDIT and release your finger
  - Buffer Editor appeared, then Close the Buffer Editor.
- Click PROGRAM and release your finger (refer photo 10-11), program is upload into the IC (chip)
- Click READ (photo 12)
- Click EDIT, close Buffer Editor -

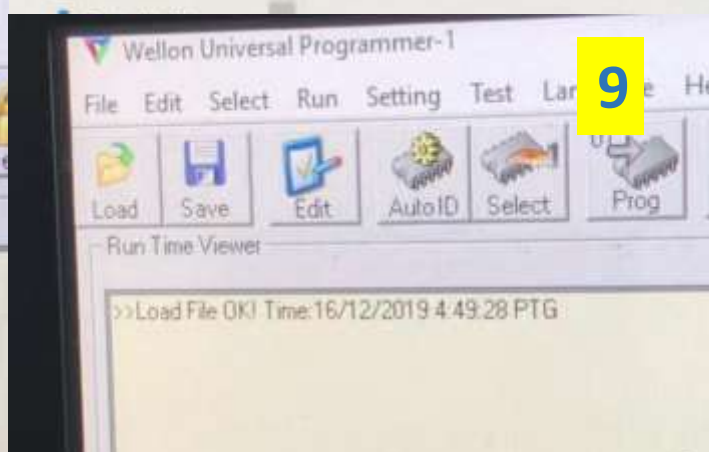
The IC (chip) is ready to use

for wiring.

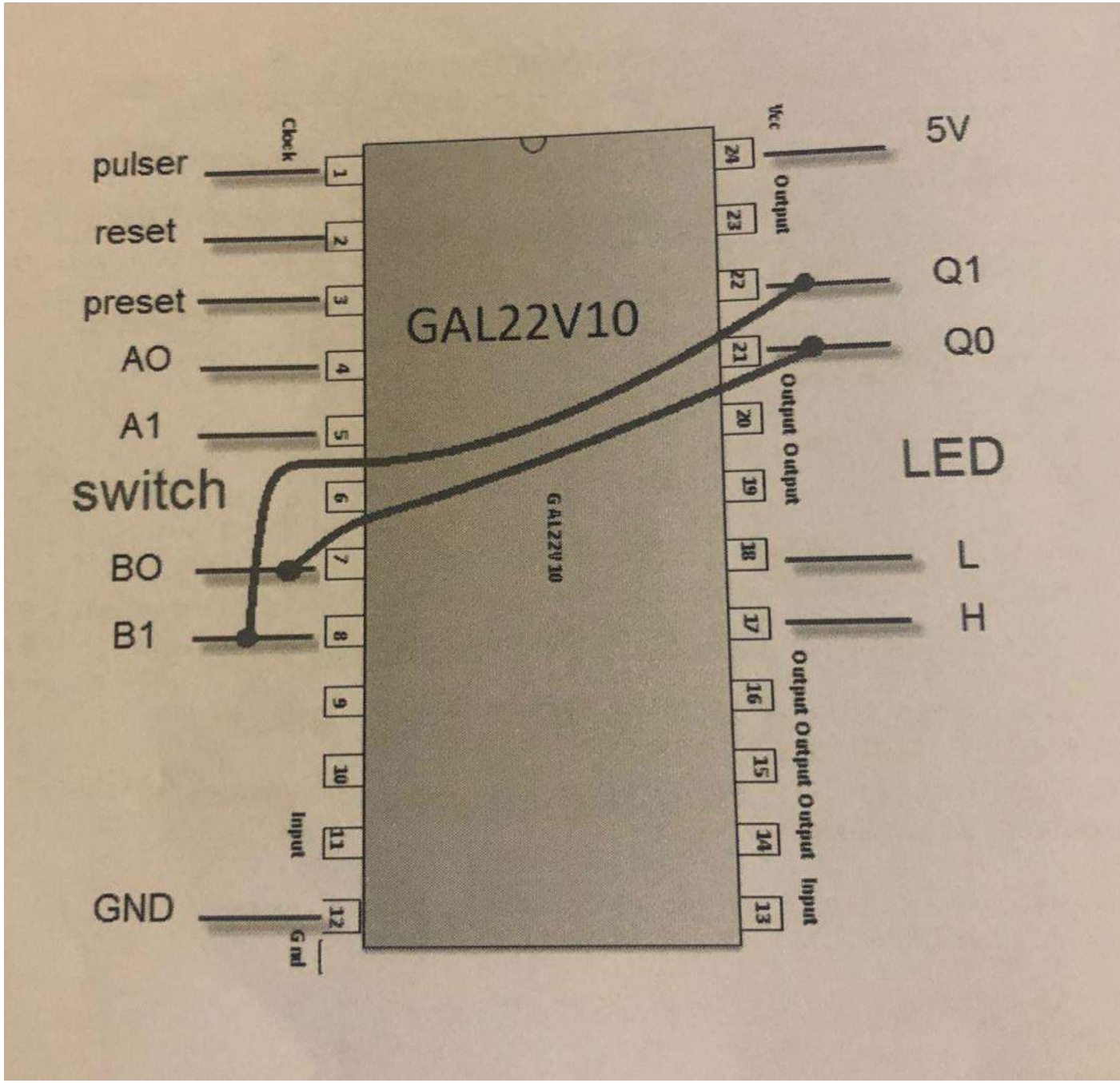




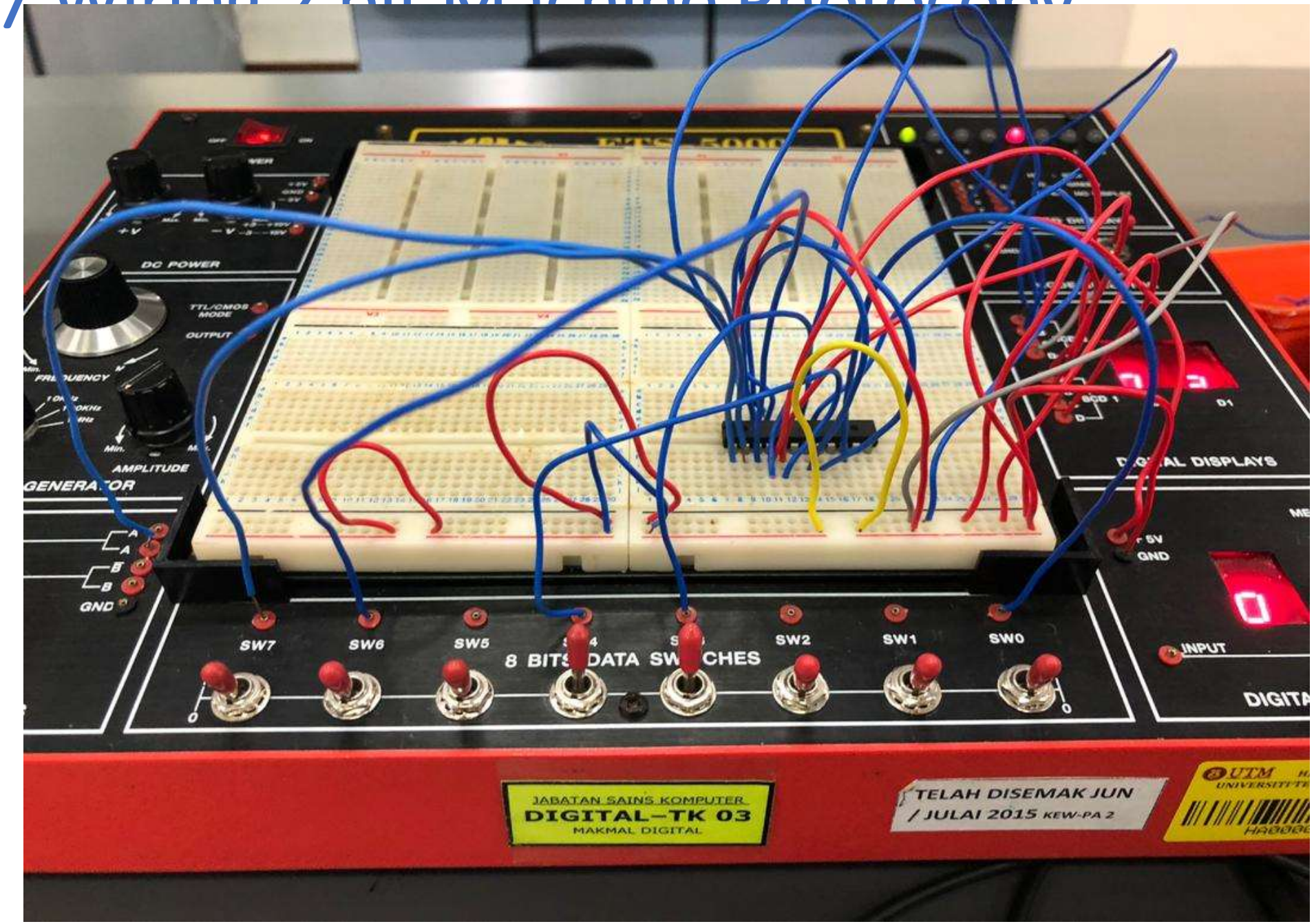


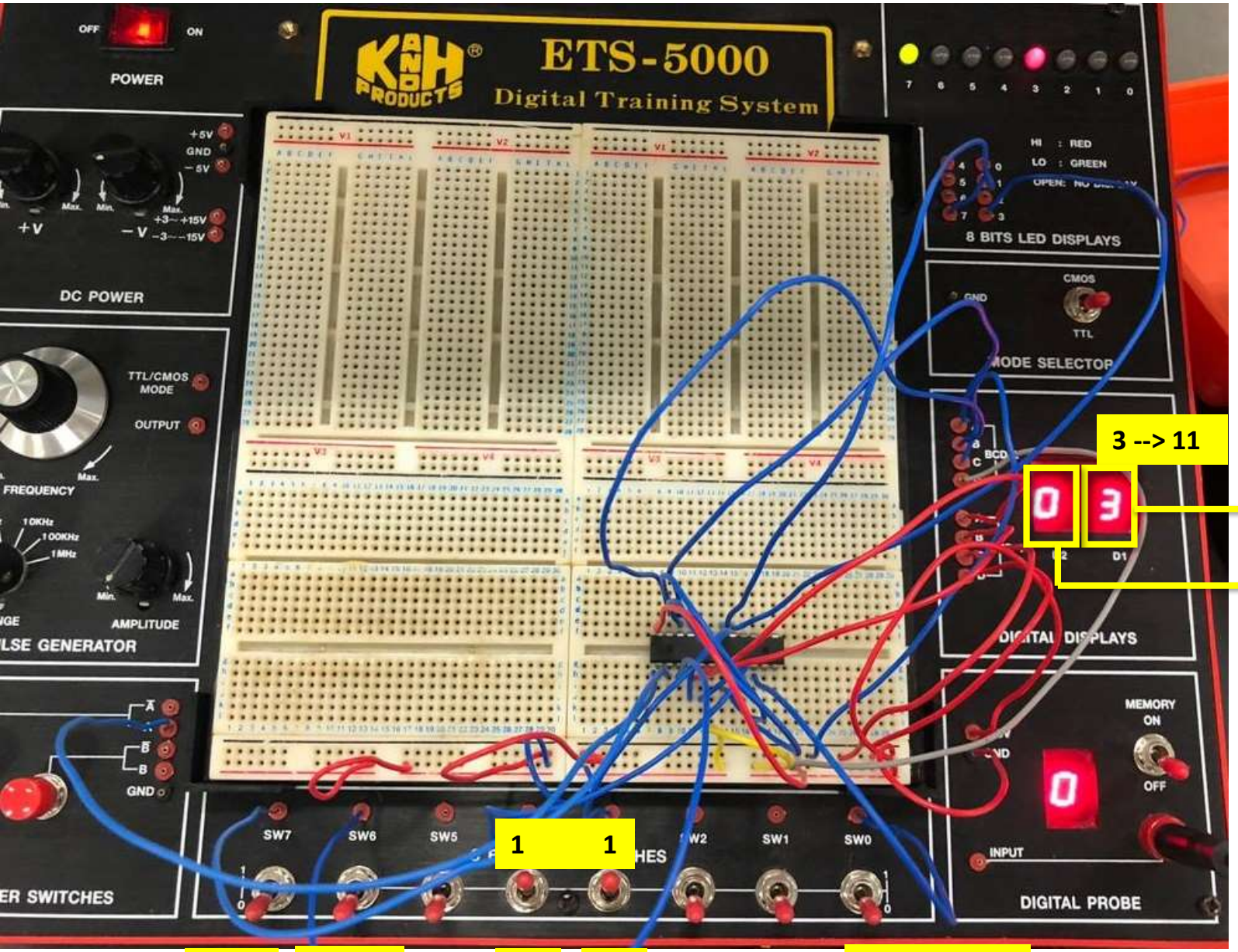



Wilon
PROGRAMMER
VP-596
IC ATF22V10CQ
Machine photocopy


GAL22V10
pulser
reset
preset
AO
A1
switch
BO
B1
GND
Clock
Input
Gnd
Vcc
Output
5V
Q1
Q0
Output Output
LED
L
H
Output Output Output Output
Input

Steps 7 Wiring 2 bit Machine Photocopy



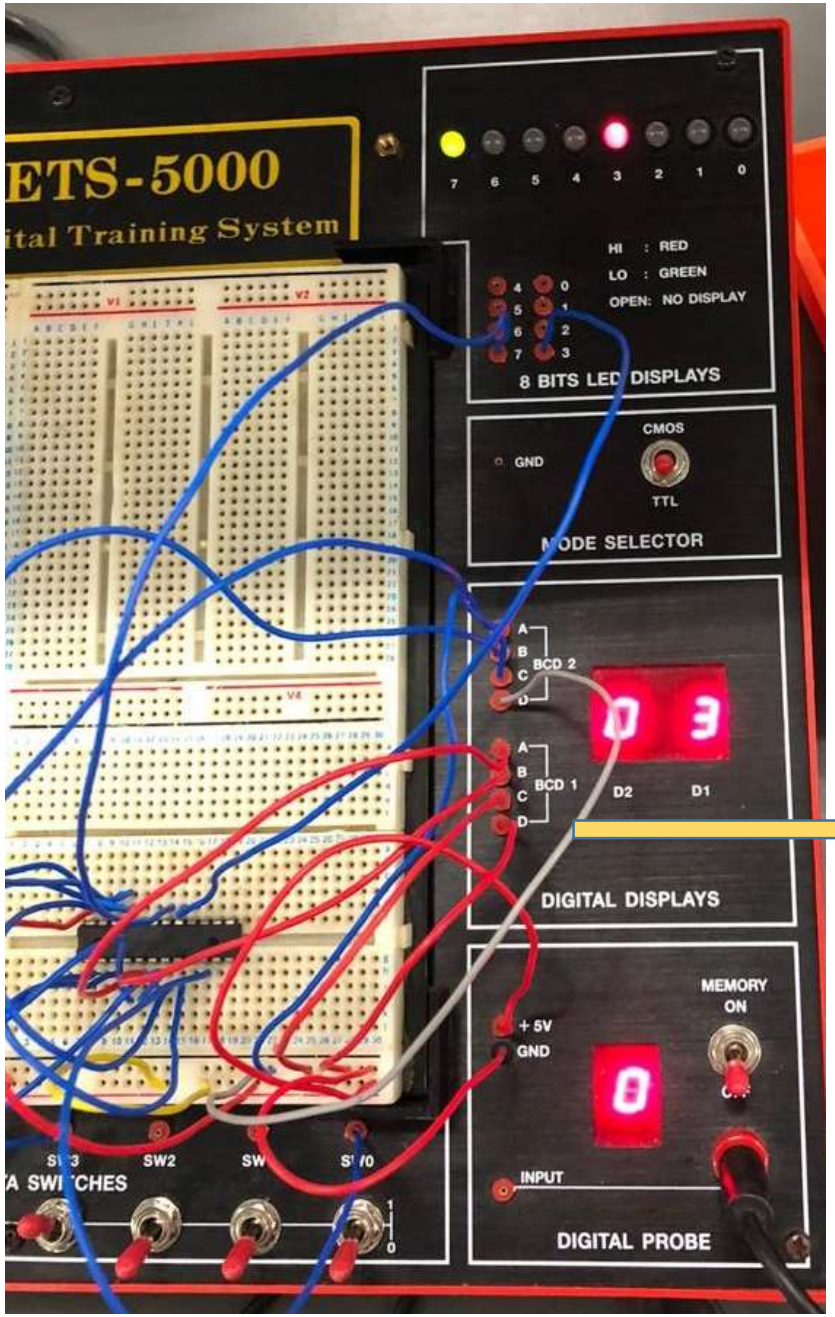


Display Max.Pages

Display counting up

Clear **Preset** **A1** **A0**

1- ON Print
0 – OFF Print



BCD1

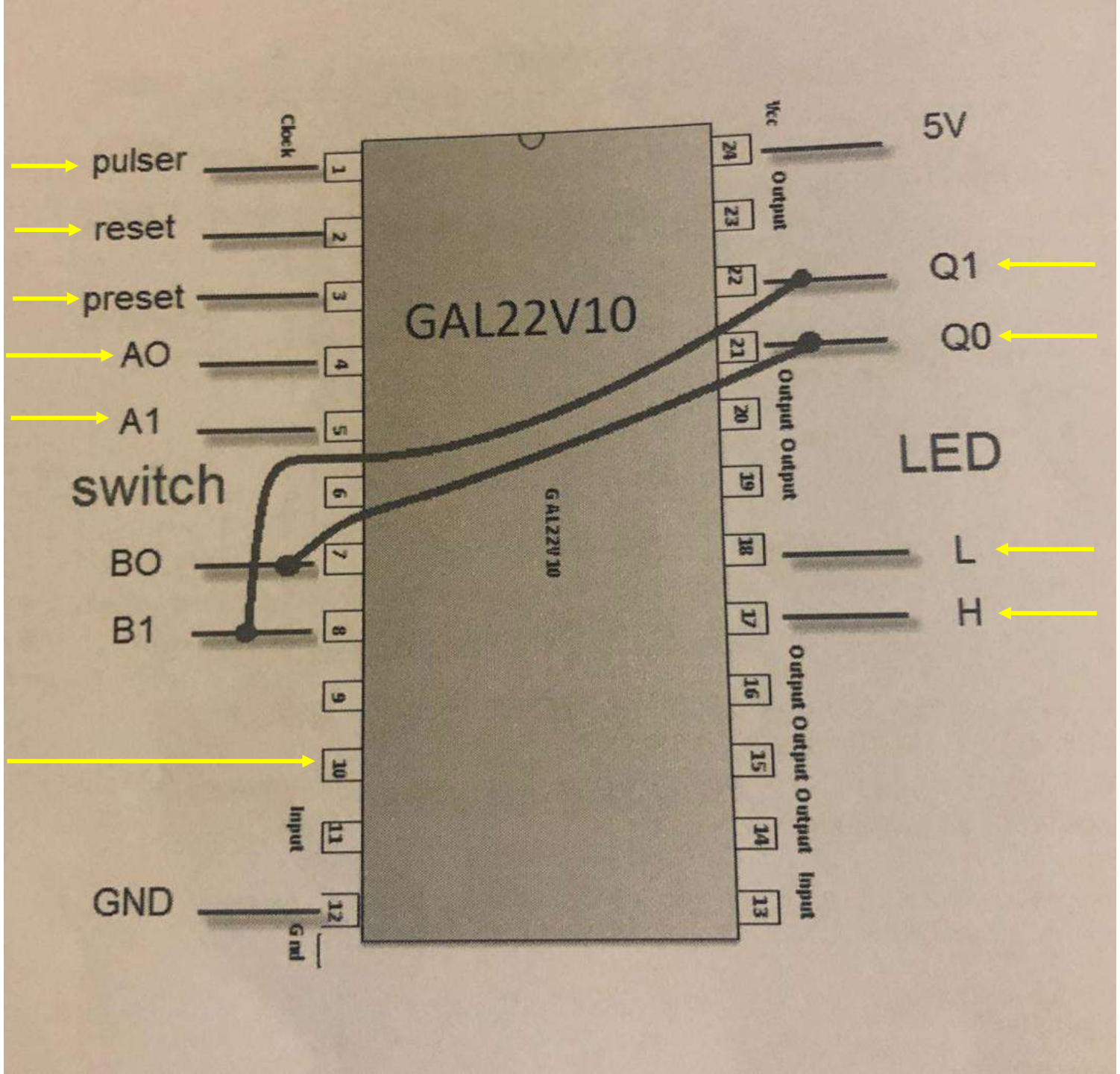
A LSB A_0

B MSB A_1

C GND

D GND

2 bit


A
pulser
SW7
reset
SW6
preset
BCD1 to A
SW3
AO
BCD1 to B
SW4
A1
BCD1 for C and D
connect to GND
switch
BO
B1
SW0
GND
GAL22V10
5V
Q1
BCD2 to B
Q0
BCD2 to A
BCD2 for C and D
connect to GND
LED
L
LED 7
H
LED 3

```
/* ***************** INPUT PINS ***********************/
PIN 1 = clk ;                /* clock - Pulser A*/
PIN 2 = reset ;              /* reset -CLR - SW7*/
PIN 3 = preset ;             /* preset -PRESET - SW6*/
PIN 4 = a0 ;                 /* Comparator A, LSB -SW3, BCD1 to A*/
PIN 5 = a1 ;                 /* MSB - SW4, BCD1 to B, BCD1 C and D both to GND */
PIN 7 = b0 ;                 /* Comparator B, PIN 21*/
PIN 8 = b1 ;                 /* PIN 22*/
PIN 10 = startPrt ;          /* Start Printing Machine - SW0*/

/* ***************** OUTPUT PINS **********************/
PIN 17 = diffCmp ;           /* XOR (A B not equal HIGH) to LED 3 */
PIN 18 = sameCmp ;           /* XNOR (A B equal HIGH) to LED 7*/
PIN 21 = q0 ;          /* output counter, BCD2 to A */
PIN 22 = q1 ;          /* output counter, BCD2 to B,BCD2 C and D both to GND */
```

```
/***** Function Comparator*************************/
sameCmp = !(a0$b0)&!(a1$b1); /*LSB with b0 AND MSB with b1*/
diffCmp = !sameCmp ;

/**** Function Clock Enabler **********************/
clkEn=startPrt & diffCmp;

/*** Function Counter 2 Bit UP ********************/
field count =[q1..0]; /* 4 state*/
$define s0 'b' 00 /*a1 a0*/
$define s1 'b' 01 /*a1 a0*/
$define s2 'b' 10 /*a1 a0*/
$define s3 'b' 11 /*a1 a0*/

count.ar=reset;       /* connect reg AR to reset (Asyn Mode) */
count.sp=preset;      /* connect reg AR to preset (Syn Mode) */

sequence count{
     present s0 if clkEn next s1;
          default next s0; /* 1st state 00 */
     present s1 if clkEn next s2;
          default next s1; /* 2nd state 01 */
     present s2 if clkEn next s3;
          default next s2; /* 3rd state 10 */
     present s3 if clkEn next s3;
          default next s3; /* 4th state 11 */
}
```

GOOD LUCK!!!!