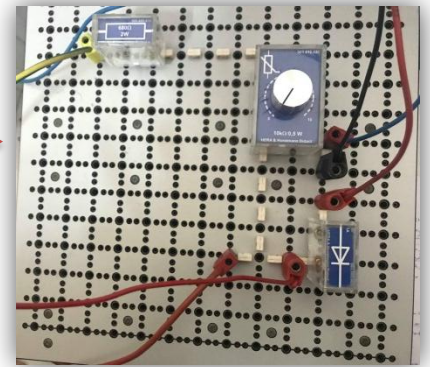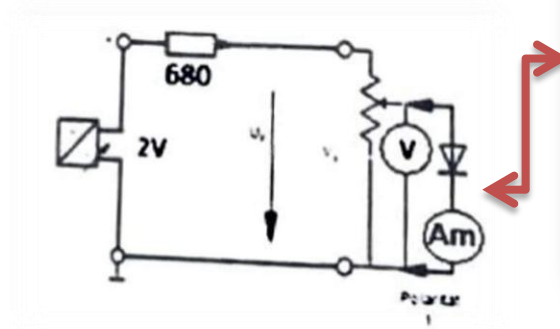## Introduction

1. We will experiment the effect of the P-N transition of a rectifier diode on the current flowing through it.
2. To investigate the current in a half wave rectifier circuit.
3. To study the bridge rectifier circuit

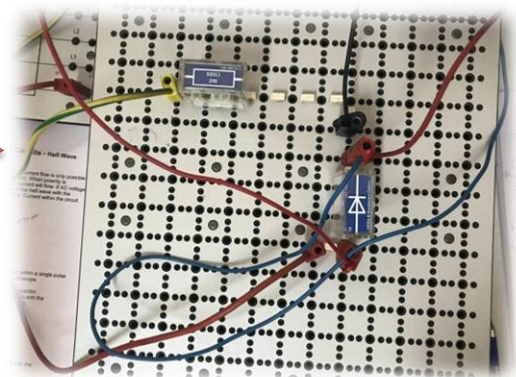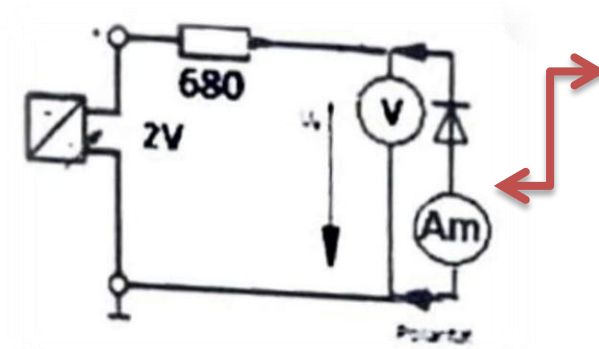## Part one(Effects of the P_N junction of diodes)

Procedure:

- 1-A(forward)
- We set up the circuit as shown.

- We set the voltage value to 2v before we connect the diode .
- We measure the value of the current through the diode while we change the value of the variable resistance.(see the attached table below)

Uf v	0	0.1	0.2	0.3	0.4	0.5	0.6	0.65	0.7	0.75
IF mA	0	0.01	0	0	0	0.14	1.09	2.11	4.46	7.02

- 1-B (Reverse)
- We change the polarity of the diode and we set the voltage directly at the power supply.
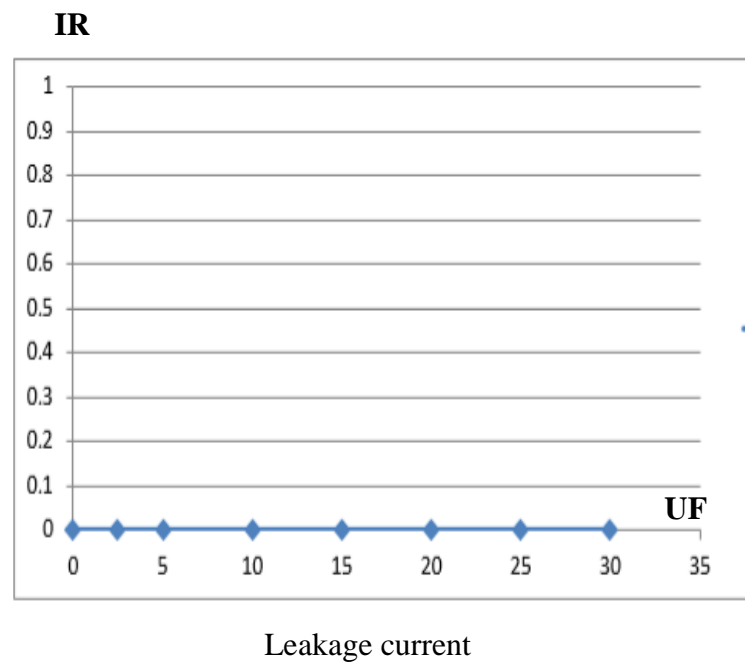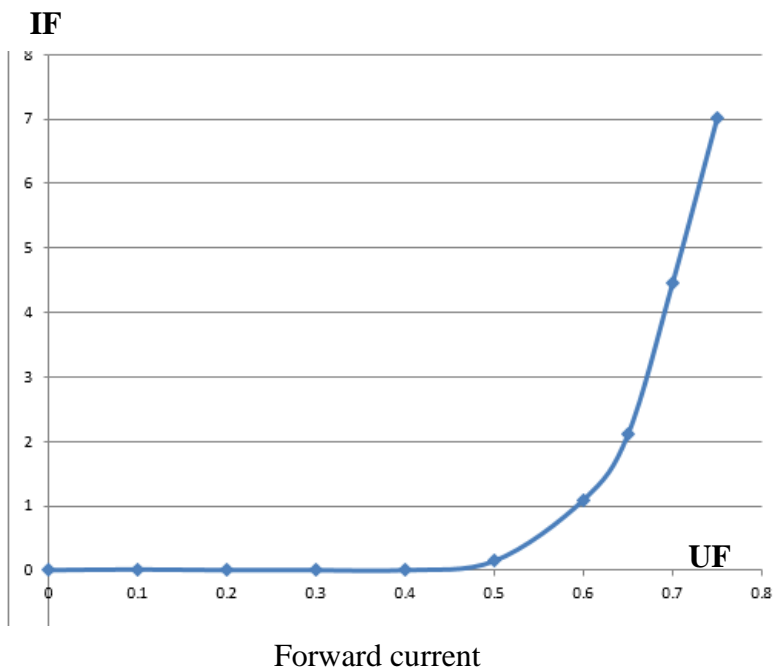- We remove the variable resistance.

- We measure the current while we change the value of the voltage(see the attached table).

UR v	0	2.5	5	10	15	20	25	30
IR mA	0	0	0	0	0	0	0	0

Q1 what is the name of the voltage, when the diode gets conductive.

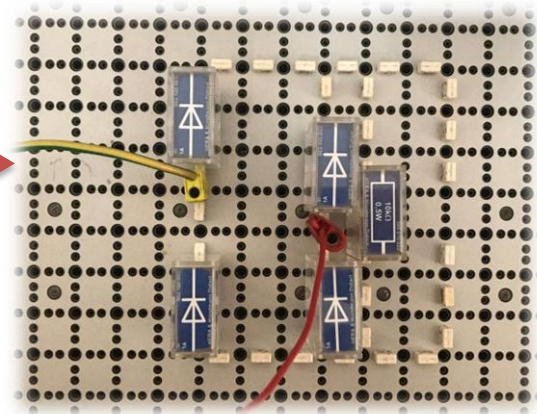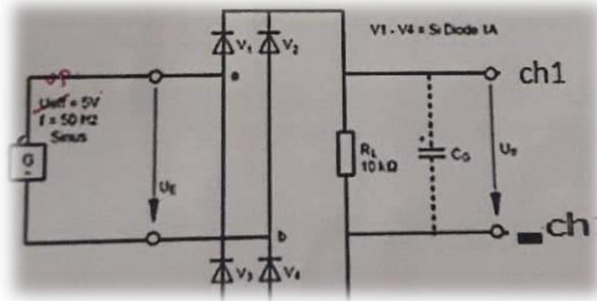☒ Forward current.

IF

Forward current

IR

Leakage current

Part three (Two-Pulse Bridge circuit –Bridge rectifier)

Procedure:

- We set up the circuit as shown.(without capacitor)

- We set the Ac voltage at 5 volt and 50 Hz
- We connected the oscilloscope and measure Vdc and vpp and the frequency.
- We connected the capacitors with (10μ,100μ) and measure Vdc and vpp.

C	non	10μ	100μ
VAC	5 volt		
VDC	1.68*2\3.14=1.07v	254.77 mv	vp=0\ 3.14=0
DC ratio = Vdc\Vac	0.21 v	50.95 mv	0
Vpp	4 volt	800 mv	200 mv
F(Hz)	100		

➕ **Notice and Qus.**
   - **V DC= 2 vp\3.14**
   - **The value of Freq is doubled.**
   ☒ **Q1**
      The ratio between Ud and UE = 0.21v
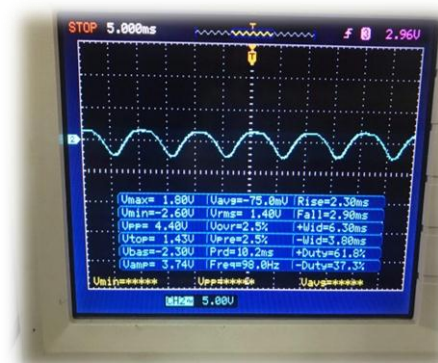   ☒ **Q2**
      The frequency of the ripple vpp =100Hz

The signals when C=10μ

The signals when C=100μ

The signals Without capacitor