**Take Home Test – Practical Experiment (ELE317)**

With the 2 layer printed circuit board and components answer the practical questions below:

1. Observe carefully the number attach to the component symbols on the printed circuit board.

R1 = 3.3 Ohms R2 = 1 k Ohms D1&D3 = Silicon diode

D2 = LED(Light Emitting Diode ) Load Resistor = 100 Ohms

J1 = Input + &- = Output

1. Provide the reading of the above component with your digital metre before soldering each component on the printed circuit board, using Ohms/Resistance range.

R1 =…………………………......

R2 = ……………………….……

D1 = ………………………….…

D3 = …………………………....

D2(LED) = ……………………...

for the resistor provide the colour code value and the metre resistance reading values

1. After soldering all the components on the printed circuit board. Without powering it, provide the reading values of each component using ohm and diode range.

R1 = …………………………….

R2 = ………….…………………

D1 = ……………………………..

D2 = ……………………………..

1. Power the circuit using 5V USB (5V Charger) power supply

With Digital Voltmeter provide the voltage reading of the 5V USB

1. USB 5V charger reading when not loaded \_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Power the printed circuit and provide voltage across each component.

R1 = ………………………..….

R2 ……………………….…….

D3 = ………………..…………

D2(LED) = ……………………

Output = ……………...……….

1. Explain why there is voltage drop in each of the component
2. Is the input voltage the same as output voltage reading, if not explain
3. Using 100 Ohms as Load
4. Measure the voltage drop across the 100 Ohms when powered,

V = ……………………..……..

1. Measure the current consumed by the load,

C = …………………….………

1. Calculate the wattage
2. To increase (i.e Double) the current and wattage as well as decrease (i.e Half of the) current and wattage consumed by the circuit, what will you do?
3. Do you have your own multimeter (DM)? If yes, provide the model No.: ……………………..

**N/B:** Apply circuit diagram where necessary to explain your answers.

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