

DIPLOMA IN BIOMEDICAL ENGINEERING TECHNOLOGY

LEVEL 6 YEAR 1 EXAMINATIONS

FINAL INTEGRATED SUMMATIVE EXAMINATIONS

SITTING: JULY/AUGUST 2025

SUBJECT: ELECTRICAL FUNDAMENTALS (PRACTICAL)

TIME: TWO (2) HOURS. **TOTAL MARKS: 100**

INSTRUCTIONS TO CANDIDATE **PASS MARK: 50**

1. Write the examination number and the National Registration Card (NRC) Number on the Question paper provided.
2. Perform the task as per given procedures.
3. Communication is not allowed in the examination room.
4. Cell phones and programmable calculators are not allowed in the examination room.
5. Use this question paper for your answers.

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO

EXAMIATION NUMBER	
NRC	

TITLE: PARALLEL RESISTIVE CIRCUIT CONSTRUCTION

In this task, you are expected to test the individual resistors and the line voltages across each resistor. After the testing, you record all the results in Table 1 provided.

REQUIREMENTS

- Resistor:
  - 20 Ω [x1]
  - 10 Ω [x1]
- d.c power source, 50V [x1]
- Digital multimeter [x1]
- Electric cables, 1 mm core, 30 cm long [x1]
- Soldering wire, 10 cm long [x1]
- Printed circuit board (PCB) [x1]
- Soldering gun [x1]
- Cable stripper [x1]
- Suitable cable cutter [x1]

Safety [5 marks]

Preparation [5 marks]

Procedure

1) Test each resistor using a multimeter. Repeat the test for each resistor.
2) Record the results in Table 1.
3) Connect the circuit as shown in Figure 1 [40 marks]
4) Measure the output voltage twice and record in Table 1
5) Measure the line currents I_1, I_2 and I_3. Repeat each measurement.

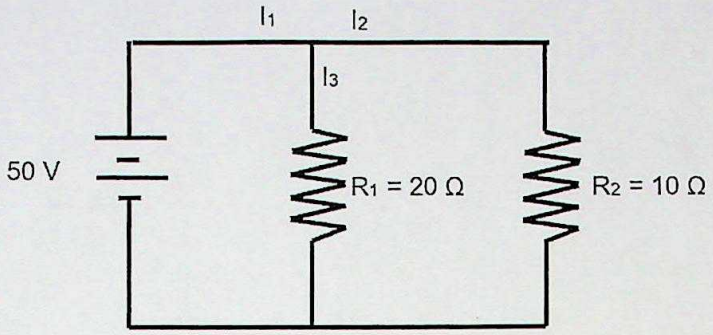


Figure 1: Resistive network

Table 1: Measurements

Measured Values	First Measurement	Second Measurement
Resistor, R_1		
Resistor, R_2		
Current, I_1		
Current, I_2		
Current, I_3		
Voltage		

[36 marks]

Analysis

Comment on the values of line currents obtained after measuring in relation to Kirchhoff's current law

[10 marks]

House Keeping

[4 marks]