

BUNAMFAN CLUSTER EXAMINATION - 2022

Kenya Certificate of Secondary Education

**448/2 – ELECTRICITY – Paper 2
(PRACTICAL)**

June 2022 - 2 ½ hours

Name.....Adm No.....

Class..... Date.....

INSTRUCTIONS TO CANDIDATES

1. This paper consist of five exercises
2. Answer all the five exercises
3. Each exercise takes 30 minutes
4. Candidates should check the question paper to ensure that all pages are printed as indicated and no pages are missing.
5. This paper consist of 5 printed pages

EXERCISE 1

1 Using materials, components and equipment provided, perform the following tasks.

- (a) Connect the circuit shown in **Figure 1**.
Let the examiner check your work. (3 marks)

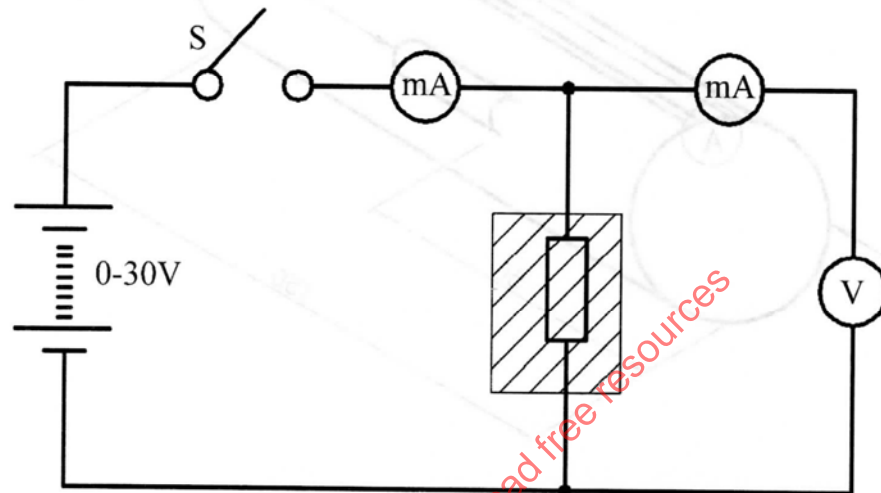


Figure 1

- (b) Close switch S and adjust the power supply to obtain values of voltage shown in Table 1 for each voltage obtained measure and record in the table the corresponding values of current. (6 marks)

Table 1

Voltage (V)	1	3	5	7	8	10
Current $I_{(mA)}$						

- (c) Use the values in **Table 1** and draw a graph of current against voltage. (5 marks)
- (d) Determine the gradient of the graph. (4 marks)
- (e) Name the quantity expressed by the gradient of the graph. (2 marks)

EXERCISE 2

2. Use the materials, tools and equipment provided to make the battery holder shown in **Figure 2**.
tools, equipment and materials provided to make the bracket shown in **Figure 2**. (20 marks)

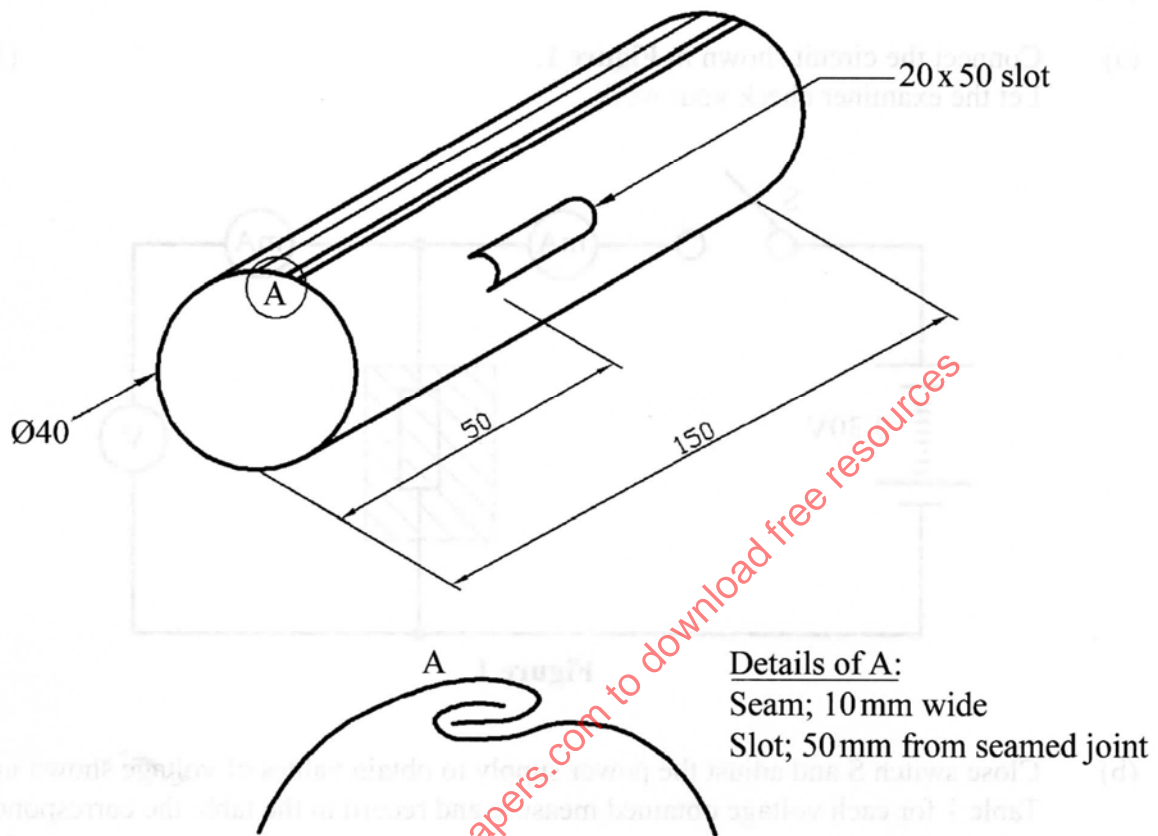


Figure 2

EXERCISE 3

- 3 Use the tools, equipment and materials provided to carry out the following tasks:
- Terminate the three-core flexible cable to the top plug and the iron box. (15 marks)
 - Turn the thermostat switch to ON position, measure and record the values of resistance between;
 - Live and Neutral at plug Ω
 - Live and earth at plug.... Ω
 - Earth at plug and iron box body Ω
 - Neutral at plug and at iron box..... Ω
- (5 marks)

EXERCISE 4

4 Using the pre-fabricated circuit provided in **Figure 3**, perform the following tasks.

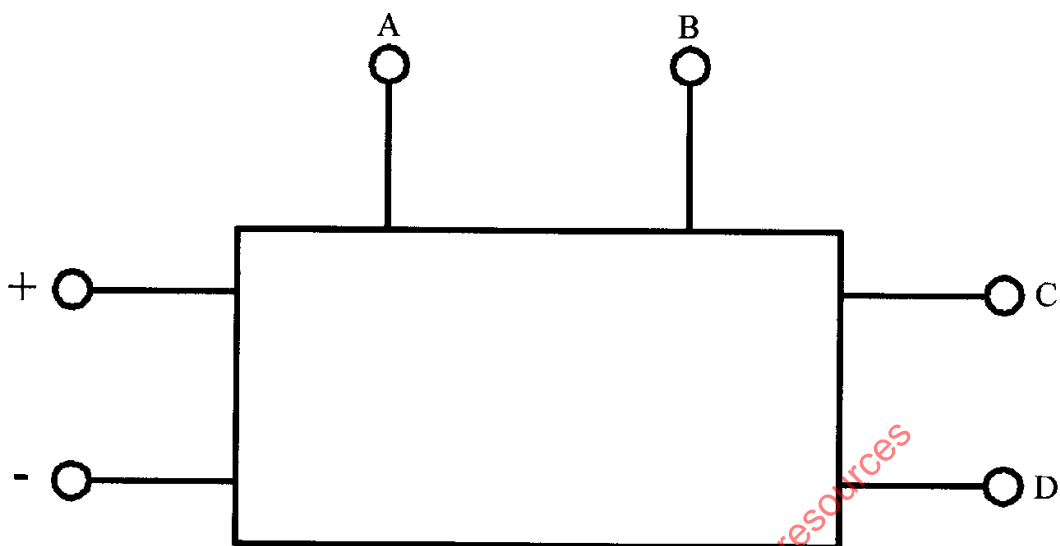


Figure 3

- (a) With the power supply OFF
- (i) Connect the milliammeter between A and B. (Observe the polarity) (1 mark)
 - (ii) Connect the voltmeter between C and D. (Observe the polarity) Let the examiner check your work. (2 marks)
- (b) With power supply ON

Adjust the variable resistor to obtain current values in Table 2 and in each case measure and record the corresponding values of voltage. (10 marks)

Table 2

Current $I_{(mA)}$	2	4	6	8	10
Voltage V					

- (c) (i) Plot the graph of current against voltage.
- (ii) Use the graph to determine the value of current when the voltage is 5.0 V (7 marks)

Value

EXERCISE 5

- 5 **Figure 4** shows the layout of a final circuit. Using PVC sheathed cable wiring system, install the lamps to be controlled by the one way switch. (20 marks)

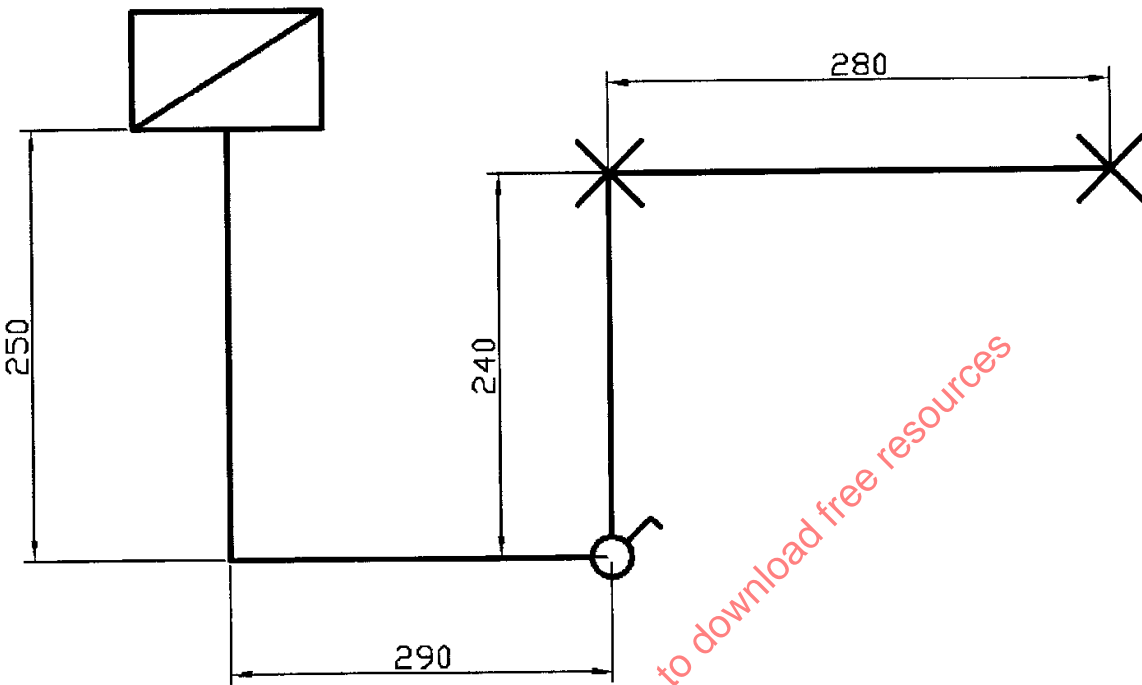


Figure 4

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