

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)

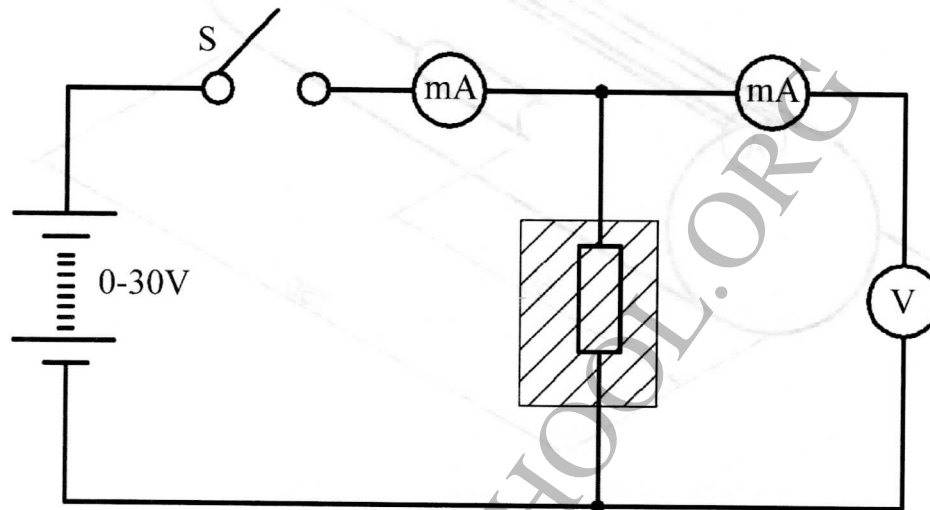


Figure 1

- (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

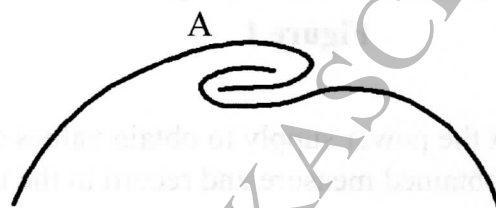
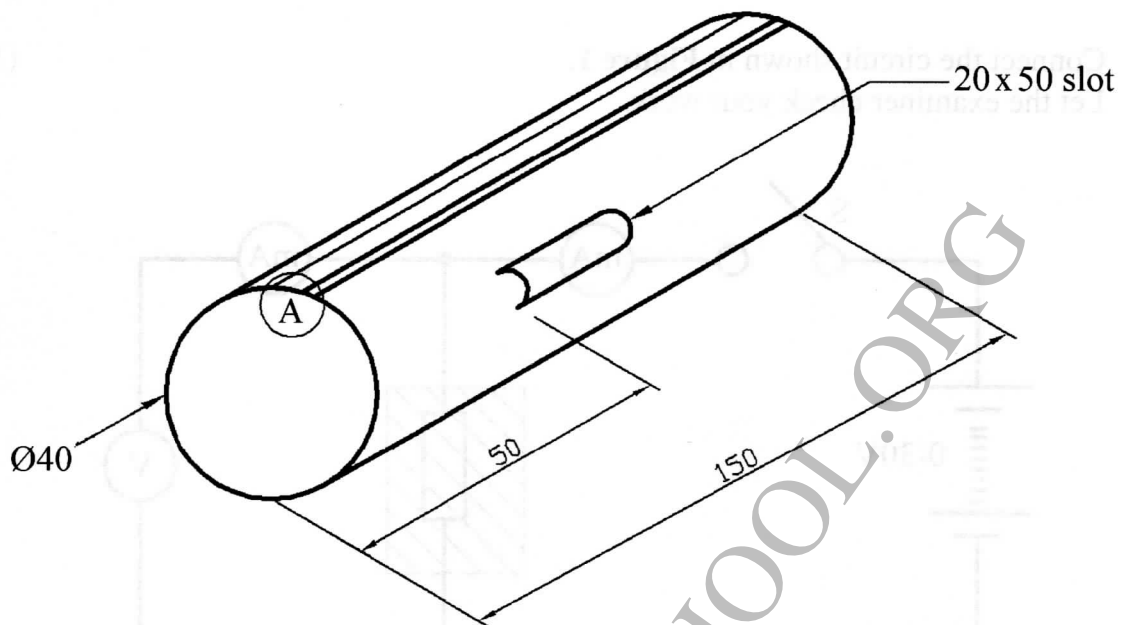
Voltage (V)	1	3	5	7	8	10
Current $I_{(mA)}$						

- (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)



Details of A:  
Seam; 10 mm wide  
Slot; 50 mm from seamed joint

**Figure 2**

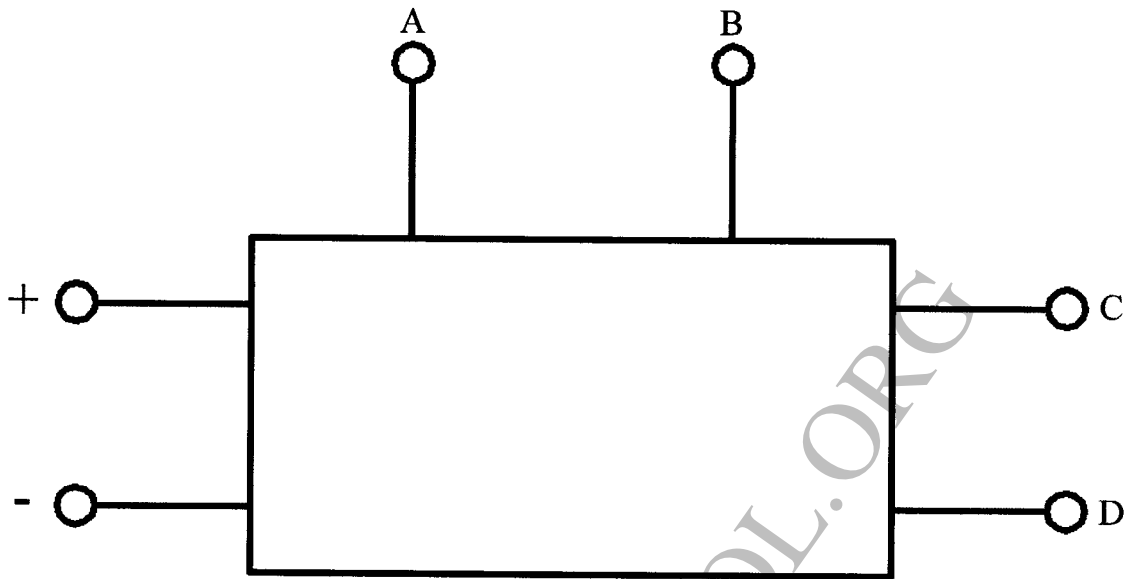
## EXERCISE 3

- 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 .....  $\Omega$
    - Live and earth at plug....  $\Omega$
    - Earth at plug and iron box body ....  $\Omega$
    - Neutral at plug and at iron box.....  $\Omega$  (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

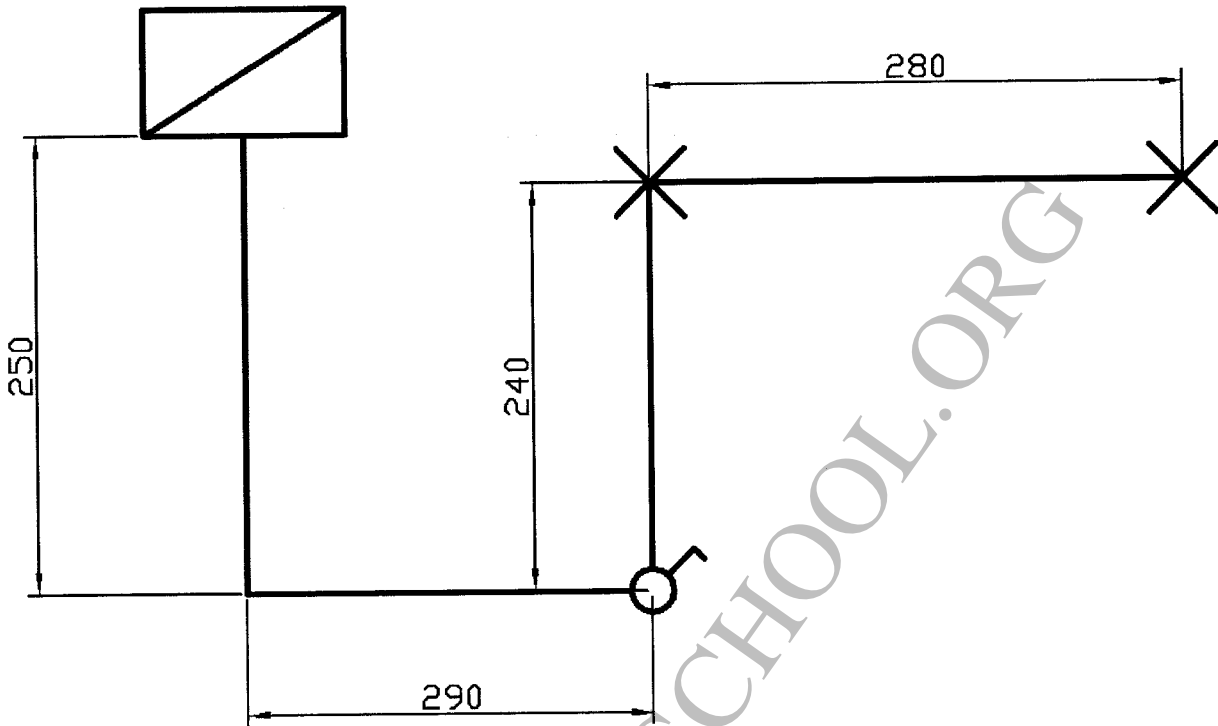
Current I <sub>(mA)</sub>	2	4	6	8	10
Voltage V					

- (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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