

34

Current electricity

34.1

- (a) Draw a circuit diagram of a bulb connected to an ammeter and a battery so that the bulb and ammeter both work.
- (b) What property is the ammeter measuring?



34.2

What current would you expect to see on the ammeters in Figure 34.1?

X _____

Y _____

Z _____

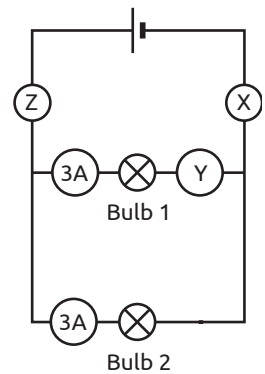
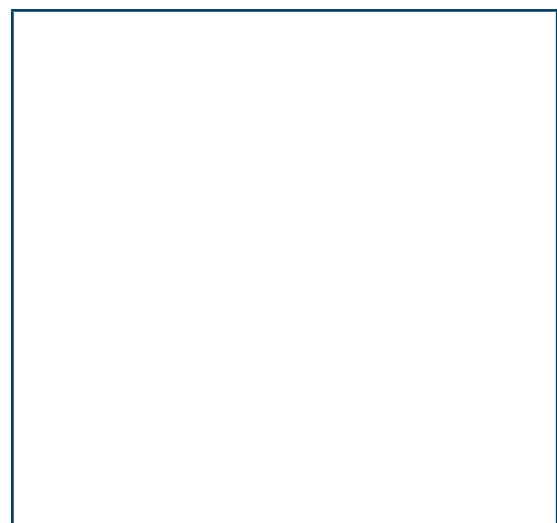


Figure 34.1

34.3

- (a) In the box provided, draw a circuit diagram of a bulb in circuit with a battery.
- (b) Draw a voltmeter connected correctly to measure the potential difference across the bulb.
- (c) In the diagram indicate the positive side and negative side on the battery symbol.



34.4

Name (from left to right) the circuit symbols shown in Figure 34.2.

- (a) _____
- (b) _____
- (c) _____
- (d) _____
- (e) _____

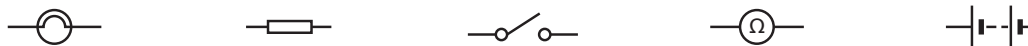


Figure 34.2

34.5

- (a) What term is used to describe the arrangement of bulbs in Figure 34.3?

- (b) If one bulb blows, will the other bulb remain lighting? (Explain your answer.)

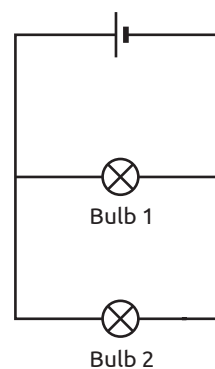


Figure 34.3

34.6

- (a) Name the instrument used to measure the resistance of a resistor. _____
- (b) What is the unit of resistance? _____
- (c) When the resistance of a circuit increases, the current _____.

34.7

- (a) Name the instrument used to measure potential difference. _____
- (b) What is the unit of potential difference? _____

34.8

Name (from left to right) the instruments represented by the symbols shown in Figure 34.4.

- (a) _____
 (b) _____
 (c) _____
 (d) _____



Figure 34.4

34.9

- (a) Name a meter that can measure current. _____
 (b) Name the unit used to measure current. _____

34.10

When green light is shone into a red solution, such as blood, some of the light is absorbed, some is reflected, and some passes straight through.

A student set up the apparatus shown below to investigate the relationship between the concentration of a red solution and how much green light passes through it.

On one side of the test tube of red solution, green light was emitted from a light-emitting diode (LED). On the other side of the test tube, a light-dependent resistor (LDR) was used to detect how much green light passed through the solution.

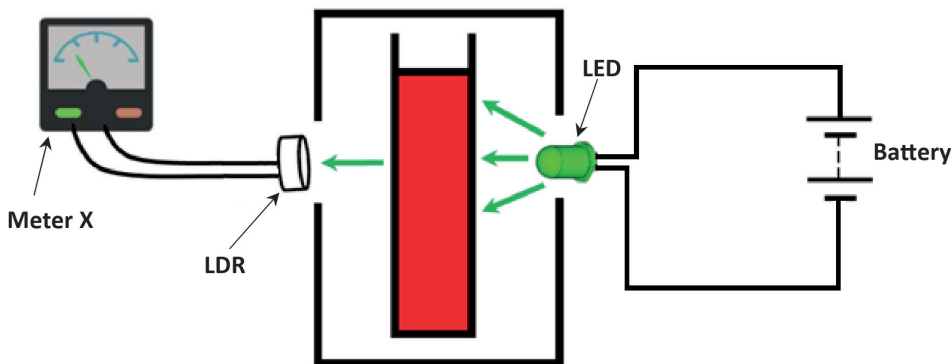


Figure 34.5

The student made different concentrations of a solution of red food dye by varying the number of drops of dye added to 20 cm³ of water. The resistance of the LDR was then determined using meter **X**. The following results were obtained.

Number of drops of food colouring	0	1	2	3	4	5	6	7	8
Resistance (Ω)	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0

(a) In the space below, draw a graph of the results obtained.

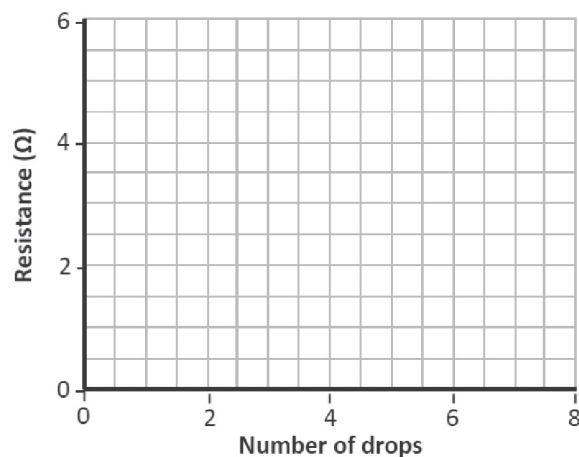


Figure 34.6

- (b) State one conclusion which is supported by the results.
 (c) Name meter **X**, which was used to determine the resistance of the LDR.
 (d) Name a piece of equipment the student could have used to accurately measure 20 cm³ of water.

(SEC 2019 JC Science exam paper)

Multiple Choice questions on this chapter

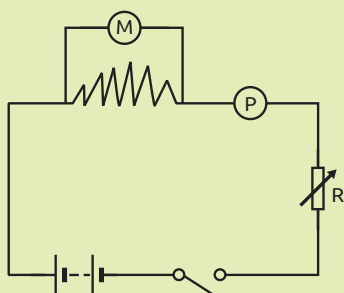


Figure 34.7

- 1 In Figure 34.7 component R is a:
- (a) Battery (c) Variable resistor
 (b) Fixed resistor (d) Diode

Answer: _____

- 2 In Figure 34.7 component P is:
- (a) A voltmeter (c) An ammeter
 (b) An ohmmeter (d) A resistor

Answer: _____

3 Figure 34.8 shows two lit bulbs. The bulbs are:

- (a) Connected in series
- (b) Connected in parallel
- (c) Connected one in series and one in parallel
- (d) Not connected

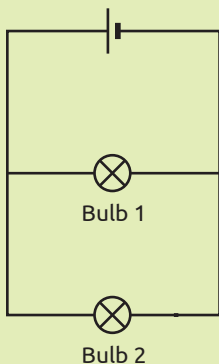


Figure 34.8

Answer: _____

4 If one bulb in Figure 34.8 was to blow, the other bulb would:

- (a) Continue to light
- (b) Go out
- (c) Get dimmer
- (d) Flash

Answer: _____

5 Fig 34.9 shows a simple electrical circuit. If the resistance of the circuit was increased, the bulb would be:

- (a) Less bright and the current increased
- (b) Less bright and the current decreased
- (c) Brighter and the current increased
- (d) Brighter and the current decreased

Answer: _____

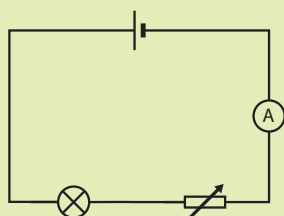


Figure 34.9

6 A battery is used to:

- (a) Produce a voltage
- (b) Measure electric current
- (c) Measure potential difference
- (d) Safeguard against short circuit

Answer: _____

7 A resistor that can change its resistance is called:

- (a) A fixed resistor
- (b) A variable resistor
- (c) An insulator
- (d) A switch

Answer: _____

8 A current flows through a circuit. When the resistance of a circuit is increased, the current:

- (a) Is unaffected
- (b) Increases
- (c) Decreases
- (d) May increase or decrease

Answer: _____

9 A current flows through a circuit. Increasing the potential difference across in this circuit causes the current to:

- (a) Decrease
- (b) Increase
- (c) Remain unchanged

Answer: _____

10 An ohmmeter measures:

- (a) Current
- (b) Potential difference
- (c) Voltage
- (d) Resistance

Answer: _____

Acknowledgements

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