

**Section A**

Answer **all** the questions in this section.

- 1 A cell with an internal resistance r is connected to a resistor, as shown in Fig. 1.1.

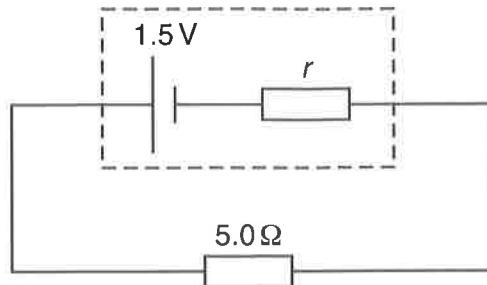


Fig. 1.1

The cell has an electromotive force (e.m.f.) of 1.5 V and a terminal potential difference of 1.2 V.

The resistor has a resistance of 5.0Ω .

- (a) Calculate the internal resistance of the cell.

$$\text{internal resistance} = \dots \Omega [2]$$

- (b) A second identical resistor is connected in parallel with the first resistor.

- (i) Calculate the resistance of the two resistors in parallel.

$$\text{resistance} = \dots \Omega [1]$$

- (ii) Explain what happens to the terminal potential difference of the cell when the second resistor is connected in parallel with the first resistor.

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[2]

[Total: 5]

