

7 (a) Define electric potential difference.

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..... [1]

(b) A cell of electromotive force (e.m.f.) 1.8 V and internal resistance r is connected in parallel with a resistor of resistance $6.0\ \Omega$ and a filament lamp, as shown in Fig. 7.1.

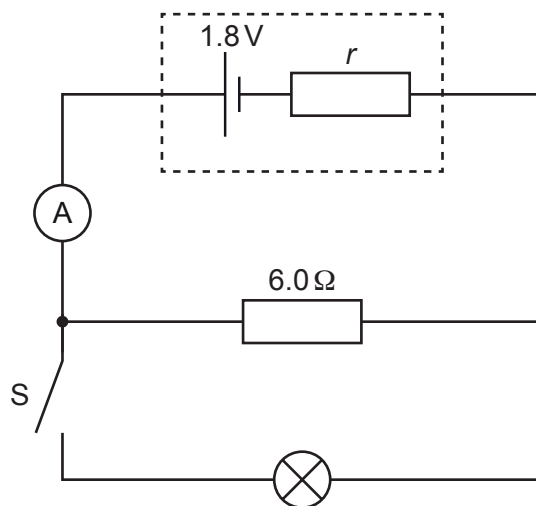


Fig. 7.1

The switch S is open. The ammeter reading is 0.25 A .

Determine the internal resistance r of the cell.

$r = \dots\dots\dots\ \Omega$ [3]

- (c) At time t_1 switch S in Fig. 7.1 is closed. Fig. 7.2 shows the variation with time t of the ammeter reading I .

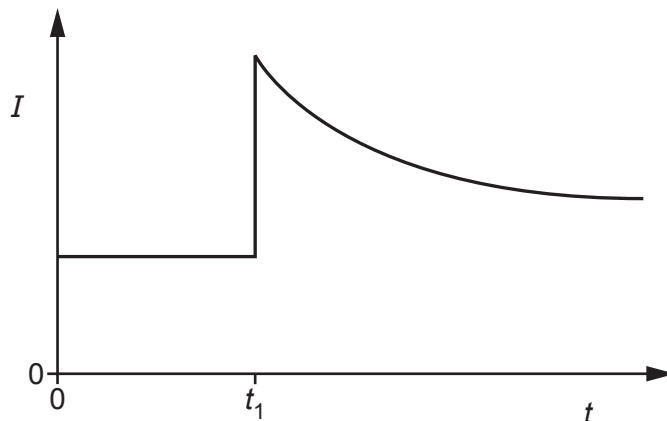


Fig. 7.2

- (i) State whether the e.m.f. of the cell after t_1 is greater than, less than or the same as it was before t_1 .

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- (ii) By considering the effect of the lamp on the total resistance of the circuit, explain the variation of the ammeter reading shown in Fig. 7.2.

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..... [3]