

- 7 (a) Define electric potential difference.

..... [1]

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

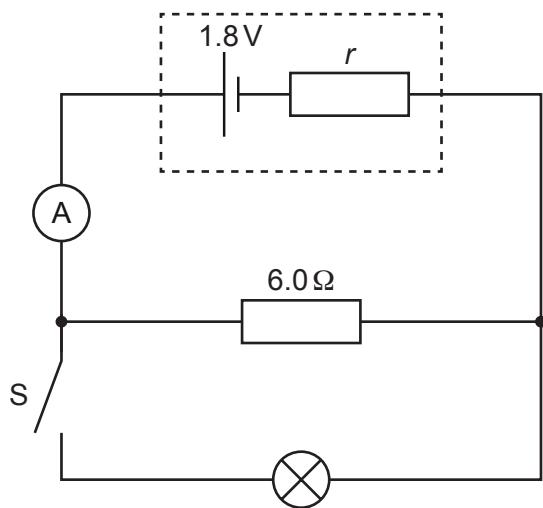


Fig. 7.1

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

Determine the internal resistance r of the cell.

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

- (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 .

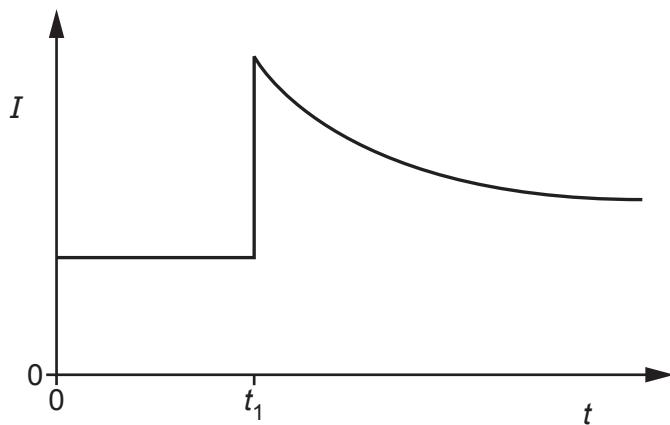


Fig. 7.2

- (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 .

..... [1]

- (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.

.....
.....
.....
.....
.....

[3]