

- 7 (a) Distinguish between the electromotive force (e.m.f.) of a cell and the potential difference (p.d.) across a resistor.

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 [3]

- (b) Fig. 7.1. is an electrical circuit containing two cells of e.m.f. E_1 and E_2 .

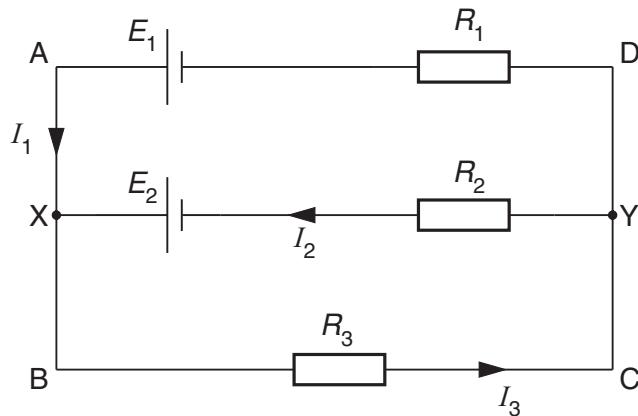


Fig. 7.1

The cells are connected to resistors of resistance R_1 , R_2 and R_3 and the currents in the branches of the circuit are I_1 , I_2 and I_3 , as shown.

- (i) Use Kirchhoff's first law to write down an expression relating I_1 , I_2 and I_3 .

..... [1]

- (ii) Use Kirchhoff's second law to write down an expression relating

1. E_2 , R_2 , R_3 , I_2 and I_3 in the loop XBCYX,

..... [1]

2. E_1 , E_2 , R_1 , R_2 , I_1 and I_2 in the loop AXYDA.

..... [1]

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