

## Mark schemes

## Q1.

(a) motor effect 1

(b) 16 mA = 0.016 A  
*allow  $1.6 \times 10^{-2}$  (A)* 1

$0.013 = B \times 0.016 \times 6.5$   
*allow correct substitution using  
incorrectly / not converted current* 1

$B = \frac{0.013}{0.016 \times 6.5}$   
*allow correct re-arrangement using  
incorrectly / not converted current* 1

$B = 0.125$  (T)  
*allow correct calculation using  
incorrectly / not converted current  
allow 0.13 (T)* 1

[5]

**Q2.**

(a) down

1

(b)  $B = 60 \times 10^{-6} \text{ T}$ 

1

$$0.045 = 60 \times 10^{-6} \times 50 \times l$$

*allow correct substitution of incorrectly / not converted value of B*

1

$$l = \frac{0.045}{60 \times 10^{-6} \times 50}$$

*allow correct rearrangement using an incorrectly / not converted value of B*

1

$$l = 15 \text{ (m)}$$

*allow a correct calculation using an incorrectly / not converted value of B*

1

**[5]**