* Page 211 & 213, EXCERCISE QUESTIONS

39. a) induced emf = BLV

induced emf = $50 \times 10^{-6} \times 0.2 \times 20$

= 2×10^{-4} V

b) V = IR

$2 \times 10^{-4} = I \times 2$

$I = \frac{2 \times 10^{-4}}{2}$

$I = 1 \times 10^{-4}$ A

c) $P = I^2R$

$P = (1 \times 10^{-4})^2 \times 2$

$P = 2 \times 10^{-8}$ W

Power = $\frac{\text{work done}}{\text{Time taken}}$

$2 \times 10^{-8} = \frac{w}{1}$

$w = 2 \times 10^{-8}$ J

d) 2×10^{-8} J

e) WORK DONE = FORCE × DISTANCE

$2 \times 10^{-8} = 1 \times 10^{-4} \times s$

$s = 2$m

f) 1×10^{-4} N

40. a) Magnetic flux is the product of magnetic field strength and perpendicular area.

∴ TOTAL FLUX = $50 \times 10^{-6} \times 2 \times 10^{-4} = 1 \times 10^{-6}$ Tm^2

$1m^2 = 10\,000\ cm^2$

$1 \times 10^{-4}\ m^2 = 1\ cm^2$

$2 \times 10^{-4}\ m^2 = 2\ cm^2$