

Multiple Choice Answers

Q32: C

Multiple Choice Answers

Q35: D

Multiple Choice Answers

Q34: C

Multiple Choice Answers

Q4: B

Q32: C

Multiple Choice Answers

Q29: D

Multiple Choice Answers

Q30: D

6(a)	$V = IR$ $= 0.85 \times 3.3 \times 10^{-3}$
	$= 2.8 \times 10^{-3} \text{ V}$
6(b)(i)	$(A =) \rho L / R$
	$= 1.8 \times 10^{-8} \times 0.24 / 3.3 \times 10^{-3} = 1.3 \times 10^{-6} \text{ (m}^2\text{)}$
6(b)(ii)	$(n =) 2.6 \times 10^{22} / (1.3 \times 10^{-6} \times 0.24) = 8.3 \times 10^{28} \text{ (m}^{-3}\text{)}$

6(b)(iii)	$v = I / nAq$ $= 0.85 / (8.3 \times 10^{28} \times 1.3 \times 10^{-6} \times 1.6 \times 10^{-19})$
	$= 4.9 \times 10^{-5} \text{ m s}^{-1}$
	OR $v = IL / Nq$ $= 0.85 \times 0.24 / (2.6 \times 10^{22} \times 1.6 \times 10^{-19})$
	$= 4.9 \times 10^{-5} \text{ m s}^{-1}$
6(c)(i)	Length (of Q) is greater (than P)
	(Average cross-sectional) area (of Q) is less (than P)
	Resistance is proportional to length / (cross-sectional) area
	(so) the resistance (of Q) is greater (than P)
6(c)(ii)	A line starting from a non-zero value of drift speed at distance = 0
	A line with an increasing positive gradient