Question number		Answer	Notes	Marks
7	(a)	movement of electrons; bucket gains electrons;	scores both marks	2
	(b)	(droplets in each stream are) like/same charge; (like charges) repel;	ignore attraction to bucket	2
	(c) (i)	use of KE = ½mv²; substitution; evaluation; e.g. KE = ½mv² KE = ½ × 6.2 × 10⁻⁹ × 3.8² (KE =) 4.5 × 10⁻⁸ (J)	stated or implied by working -1 for POT error allow 4.4×10⁻⁸, 4.47 × 10⁻⁸ = 2 marks allow 4.4764 × 10⁻⁸ (J)	3
	(ii)	substitution into Q = It; rearrangement; evaluation; e.g. 1.1 × 10⁻¹⁰ = current × 9.2 × 10⁻³ current = 1.1 × 10⁻¹⁰ / 9.2 × 10⁻³ current = 1.2 × 10⁻⁸ (A)	stated or implied by working -1 for POT error allow 1.195... × 10⁻⁸ (A)	3
	(iii)	substitution into E = QV; conversion of kV to V; evaluation; e.g. E = 1.1 × 10⁻¹⁰ × 1.7 1.7 kV = 1700 V (E =) 1.9 × 10⁻⁷ (J)	allow **valid** substitution into E=VIt ignore units allow 1700 or ×1000 seen anywhere in working -1 for POT error allow 1.87 × 10⁻⁷ (J), 1.88 × 10⁻⁷ (J), 1.8768 × 10⁻⁷ (J)	3

(Total for Question 7 = 13 marks)