

Question number	Answer	Notes	Marks
7 (a)	idea of transfer of <u>electrons</u> ;  due to friction (between floor and shoes/wheels);	reject if positive electrons seen allow 'rubbing' for friction 'electrons are rubbed off' only scores 1 mark.	2
(b) (i)	charge = current $\times$ time;	words or correct symbols e.g. $Q = I \times t$	1
(ii)	substitution and rearrangement; evaluation; unit;  e.g. (I =) $0.0017 \div 0.075$ (I =) 0.023 A	-1 for POT error A or mA mark independently  0.02, 0.0227 etc. condone 0.022, 0.0226 etc.  23 mA gets 3 marks	3
(c)	any three of: MP1. metal button is a conductor (to earth); MP2. idea of there being a voltage / p.d. between man and button/earth; MP3. idea of {discharge / movement / flow / transfer} of electrons;  MP4. <u>current</u> in man's body;	allow 'metal conducts electricity'  allow charge for electrons condone transfer of positive charge  award 1 mark for idea that shock was from static electricity if no other mark awarded	3

**Total 9 marks**