**M1.**         (a)     (i)      (bottom **or** other ends) move apart or  
repel

*accept they move apart*

**1**

(ii)     have same charge

*accept both have negative charge   
(from part (b) do not credit both have positive charge*

same **or** like charges repel

*not just opposite charges attract*

**2**

(b)     positive

**1**

electrons

**1**

cloth

**1**

polythene

*accept strips*

**1**

(c)     (i)      conductors

*accept metals*

**1**

(ii)     insulators

*accept non-conductors/poor conductors do not credit  
non-metals*

**1**

**[9]**

**M2.**         (a)     (i)      Ends have charge  
Which is opposite on each rod

**2**

(ii)     Attracts

**1**

(b)     (i)      Repulsion

**1**

(ii)     Ends have same charge

**1**

(c)     Electrons move between cloth and rod  
Where gather is negative  
Where move from is positive

**3**

**[8]**

**M3.**          (a)     clothing and seat rub together

*accept friction between clothing and seat*

**1**

electrons transfer from seat to driver

**or**

electrons transfer from driver to seat

*accept electrons transfer on its own if first mark scores*

*an answer in terms of rubbing, between clothing and seat* ***and*** *charge transfer without mention of electrons gains* ***1*** *mark  
an answer in terms of friction / rubbing* ***and*** *electron transfer without mention of clothing and seat gains* ***1*** *mark*

**1**

(b)     (i)      how wet the air is affects charge (build up)

*accept humidity affects charge*

**or**

damp air is a better conductor

**or**

damp air has a lower resistance

*do* ***not*** *accept fair test or as a control unless explained*

**1**

(ii)     No – it was only the lowest under these conditions

*accept answer in terms of changing the conditions may change the results*

**or**

No – there are lots of other materials that were not tested

**or**

Yes – the highest value for cotton is smaller than the lowest value for  
the other materials

*do* ***not*** *accept results show that it is always less / smallest*

**1**

**[4]**

**M4.**          (i)      **either**210 C

**3**

**or**1260 (joules of energy transferred)

*unit not required*

**1**

          210

**1**

          coulomb(s) C

*allow J/V*

**1**

(ii)      **either**0.7 A

**3**

**or**charge = current × time

***or*** *210\* = current × 300*

**1**

**or** Q = It

***or****\* same as candidate’s answer to  
part (a)(I) provided correct unit given in part (a)(i)****or****\* as follows from above*

**1**

          current = 0.7\*  
amp(s) **or** A

**1**

**[6]**