Mark scheme

Question			Answer/Indicative content	Marks	Guidance
1	a	i	Rub the balloon (against the cloth) ✓	1 (AO 1.2)	**ALLOW** rubbing them together **Examiner's Comments** Part (a) (i) was well answered by most candidates. The process was generally well understood but weaker responses often lacked sufficient detail to be credited.
		ii	(There is a) transfer of electrons from the balloon / to the cloth/ **AW** ✓	1 (AO 1.2 x 1)	**ALLOW** it loses electrons / negative charges. **DO NOT ACCEPT** transfer of protons / neutrons / positive charges. **Examiner's Comments** Part (a) (ii) was well answered by medium and higher scoring candidates. Many candidates understood that negative charges were being removed from the balloon, leaving it positively charged. Lower scoring candidates' answers often incorrectly suggested that positive charges moved to the balloon.
		iii	Opposite charges attract / **AW** ✓	1 (AO 2.1 x 1)	**ALLOW** opposites attract. **ALLOW** negatives attract to positives **ORA** **Examiner's Comments** Part (a) (iii) was well answered by most candidates.
	b		**First check the answer on the answer line** **If answer = 1800 (C) award 3 marks** (Q = It) t = 2 × 60 = 120 (s) ✓ Q = 15 × 120 ✓ Q = 1800 (C) ✓	3 (AO 1.1) (AO 2.1) (AO 2.1)	**ALLOW 2** marks for an answer of 30 (C) – conversion of time not completed **Examiner's Comments** Question 18 (b) was a simple calculation where candidates had to convert 2 minutes into seconds and then substitute into the given formula. More successful candidates correctly converted and calculated and were given 3 marks. Many middle and lower

					performing candidates did not do the conversion but substituted in correctly and were given 2 marks.
			Total	**6**	
2			C	1 (AO 2.2)	**ALLOW** 2 / 2A
			Total	**1**	
3			**A**	1 (AO 1.1)	
			Total	**1**	
4			**B**	1 (AO 1.2)	
			Total	**1**	
5		i	Nucleus ✓	1 (AO1.1)	
		ii	Proton ✓ Neutron ✓	2 (2× AO1.1)	In either order
		iii	Electron ✓	1 (AO1.1)	
		iv	Neutral ✓	1 (AO1.1)	**ALLOW** 0 / no charge /AW **Examiner's Comments** All parts of this question were answered very well. There were numerous mis-spellings in part (a) although all the words were given in the list above; the mis-spellings were not penalised if the meaning was clear.
			Total	**5**	
6			B ✓	1 (AO1.1)	
			Total	**1**	