Practice test mark scheme Foundation

Q		Expected answers	Marks	Additional guidance
1	a	CO_2	1	
	b	ionic substances are solids but covalent substances are gases at 20°C	1	
	c	B	1	
	d	nitrogen	1	
		oxygen	1	
			5	
2		added – burning fossil fuels, heating, decay, respiration	3	Any two
		removed – photosynthesis, dissolving in oceans, chemical reactions		Any two
			3	[4 ways: (3) / 3 ways: (2) / 2 ways: (1)]
3	a	CO	1	
	b	Zn	1	
	c	C	1	
	d	It is too reactive	1	
			4	
4	a	the outer rigid layer of the Earth	1	
	b	silicon and oxygen	1	
	c	SiO_2	1	
			3	
5	a	electrolysis	1	
	b	Ions cannot move in a solid	1	
			2	
6		• oxygen and nitrogen have lower boiling points than water • oxygen and nitrogen have weak forces between their molecules • and so less energy is needed to separate them (and hence lower boiling point) • water molecules must have stronger forces between their molecules • and so more energy is needed to separate them (and hence higher boiling point) Any two points but to gain 3 marks, the answer must refer to water and either oxygen or nitrogen	3	Accept 'oxygen and nitrogen are small molecules'
			3	
		TOTAL	**20**	

Practice test mark scheme Higher

Q		Expected answers	Marks	Additional guidance
1	a	electrolysis	1	
	b	from the negative electrode /cathode	1	
	c	$2O^{2-} \rightarrow O_2 + 4e^-$	1	
			3	
2	a	• oxygen and nitrogen have lower boiling points than water • oxygen and nitrogen have weak forces between their molecules • and so less energy is needed to separate them (and hence lower boiling point) • water molecules must have stronger forces between their molecules • and so more energy is needed to separate them (and hence higher boiling point)	3	Any 3 accept 'oxygen and nitrogen are small molecules'
	b	water	1	
			4	
3	a	the <u>outer</u> <u>rigid</u> <u>layer</u> of the <u>Earth</u>	1	all needed
	b	SiO_2	1	
	c	there are strong (covalent) bonds <u>throughout</u> the structure	1	
			3	
4	a	hydrogen, oxygen, carbon, nitrogen	1	all needed in any order
	b	$HOOCCH_2NH_2$ / $C_2H_5O_2N$	1	any correct representation without the bonds
	c	carbohydrates do not contain nitrogen (atoms)/amino acids contain nitrogen	1	
			3	
5	a	it has lost oxygen	1	
	b	6.5 (tonnes)	1	
	c	iron / copper or any other metal below carbon in the reactivity series	1	
	d	positive ions in a sea of freely moving electrons	1	
			4	
6		ionic: attraction(1);between oppositely charged ions (1) covalent: attraction between the nuclei of atoms (1); and the electrons shared between them (1)	3	any three
			3	
		TOTAL	**20**	