GROUP 7 ELEMENTS

Mark scheme

Question 1

Question	Answer	Extra information	Marks
(a)(i)	gas		1
(ii)	increases		1
(b)(i)	–1	allow Cl^- allow – allow negative	1
(ii)	sodium + chlorine → sodium chloride	allow correct symbol equation	1
Total marks			4

Question 2

Questions	Answers	Extra information	Marks
(a)(i)	Br	do not accept BR or br or bR ignore numbers allow written in table if answer blank	1
(ii)	I Br Cl	allow iodine, bromine, chlorine allow I,B,C allow capitals or lower case allow 184, 58, -34 ignore numbers	1
(b)	they are halogens they become less reactive down Group 7		1 1
Total marks			4

Question 3

Questions	Answers	Extra information	Marks
(i)	Cl > Br > I or I < Br < Cl	accept reactivity / it decreases down the group	1
	Cl has 2 reactions, Br has 1 reaction, I doesn't react	allow Cl has most / more reactions and I has least / less reactions (must be clear about where Br fits in)	1
(ii)	Br_2	allow multiples / fractions if correctly completed and balanced	1
(iii)	(they) have 7 outer electrons	allow (they) have 7 electrons in highest occupied (energy) level / shells / rings	1
Total marks			4

Question 4

Questions	Answers	Extra information	Marks
		must be a comparison	
	(outer) electron closer (to nucleus)	accept fewer (electron) shells / energy levels fluorine is the smaller/est	1
	stronger/est attraction (to nucleus) owtte or less screening (by inner electrons)	do **not** allow magnetic / intermolecular forces	1
	electron gained more easily	need some indication of outer electron shell somewhere in explanation otherwise max of 2 marks	1
Total marks			3

Question 5

Questions	Answers	Extra information	Marks
(a)(i)	iodine		1
(ii)	fluorine or chlorine		1
(iii)	2,7		1
(iv)	astatine		1
(b)(i)	chlorine>bromine>iodine		1
(ii)	any **two** suitable comparisons about the extent to which the iron wool glowed e.g. chlorine is more reactive than bromine because iron glowed more brightly with chlorine than bromine (1) e.g. bromine is more reactive than iodine because iron glowed with bromine but not with iodine (1)		2
Total marks			7

Question 6

Questions	Answers	Extra information	Marks
(i)	bromine	allow Br_2 / Br do not allow bromide	1
(ii)	iodine is less reactive (than bromine)	it = iodine allow converse do **not** allow bromide	1
Total marks			2

Question 7

Questions	Answers	Extra information	Marks
(a)	increase		1
(b)(i)	Na^+ **and** Br^-	both required	1
(ii)	sodium chloride	allow NaCl do **not** allow sodium chlorine	1
(iii)	chlorine is more reactive than bromine	allow converse argument allow symbols Cl, Cl_2, Br and Br_2 allow chlorine / it is more reactive. do **not** allow chloride **or** bromide	1
(iv)	fluorine	allow F / F_2 do not allow fluoride	1
Total marks			5