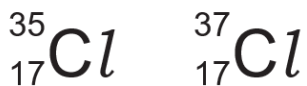


GCSE Chemistry A (Gateway Science)
J248/03 C1-C3 and C7 Higher (Higher Tier)

Question Set 14

1 Look at the information about two atoms of chlorine.



The **atomic number** of chlorine is 17.

(a) What is meant by atomic number? [1]

(b) These two atoms of chlorine are **isotopes**.

Explain why these two atoms of chlorine are isotopes. [1]

(c) (i) Look at the information about other atoms and ions.

Atom or ion	Atomic number	Mass number	Number of protons	Number of neutrons	Number of electrons	Electronic structure
S	16	32	.....	16	16	.....
B	5	11	5	.....	.....	2.3
F ⁻	9	19	.....	.....	10	2.8
Li ⁺	3	7	3	4	.....	.....

Complete the table. [4]

(d) (i) The electronic structure of sodium is 2.8.1. The electronic structure of oxygen is 2.6. Sodium and oxygen react together to make sodium oxide.

Sodium oxide is an **ionic** compound.

Draw 'dot and cross' diagrams to show the ions made when sodium reacts with oxygen.

Show the charges on the ions. [3]

(ii) What is the **formula** of sodium oxide? [1]

Total Marks for Question Set 14: 10

The Periodic Table of the Elements

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1	2													17	18		
1	2													17	18		
H hydrogen 1.0	He helium 4.0													F fluorine 19.0	Ne neon 20.2		
3	4													8	9		
Li lithium 6.9	Be beryllium 9.0													O oxygen 16.0	Ne neon 20.2		
11	12													16	17		
Na sodium 23.0	Mg magnesium 24.3													S sulfur 32.1	Cl chlorine 35.5		
19	20													34	35		
K potassium 39.1	Ca calcium 40.1													Se selenium 79.0	Kr krypton 83.8		
37	38													50	51		
Rb rubidium 85.5	Sr strontium 87.6													Sn tin 118.7	Sb antimony 121.8		
55	56													81	82		
Cs caesium 132.9	Ba barium 137.3													Tl thallium 204.4	Pb lead 207.2		
87	88													114	115		
Fr francium	Ra radium													Ft flerovium	Lv livermorium		
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Sc scandium 45.0	Ti titanium 47.9	V vanadium 50.9	Cr chromium 52.0	Mn manganese 54.9	Fe iron 55.8	Co cobalt 58.9	Ni nickel 58.7	Cu copper 63.5	Zn zinc 65.4	Ga gallium 69.7	Ge germanium 72.6	As arsenic 74.9	Se selenium 79.0	Br bromine 79.9	Kr krypton 83.8	Xe xenon 131.3	Rn radon
39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
Y yttrium 88.9	Zr zirconium 91.2	Nb niobium 92.9	Mo molybdenum 95.9	Tc technetium	Ru ruthenium 101.1	Rh rhodium 102.9	Pd palladium 106.4	Ag silver 107.9	Cd cadmium 112.4	In indium 114.8	Sn tin 118.7	Sb antimony 121.8	Te tellurium 127.6	I iodine 126.9	Xe xenon 131.3	Rn radon	
57-71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
lanthanoids	Hf hafnium 178.5	Ta tantalum 180.9	W tungsten 183.8	Re rhenium 186.2	Os osmium 190.2	Ir iridium 192.2	Pt platinum 195.1	Au gold 197.0	Hg mercury 200.6	Tl thallium 204.4	Pb lead 207.2	Bi bismuth 209.0	Po polonium	At astatine	Rn radon		
89-103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
actinoids	Rf rutherfordium	Db dubnium	Sg seaborgium	Bh bohrium	Hs hassium	Mt meitnerium	Ds darmstadtium	Rg roentgenium	Cn copernicium								

Key
atomic number
Symbol
name
relative atomic mass

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