

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

**Question Set 18**

1 Look at the diagram.

It shows part of Mendeleev's Periodic Table which was developed in 1871.

Mendeleev arranged the elements in order of relative atomic mass.

Group	1	2	3	4	5	6	7	
Periods								
1	H 1.008							
2	Li 6.939	Be 9.012	B 10.81	C 12.011	N 14.007	O 15.999	F 18.998	
3	Na 22.99	Mg 24.31	Al 29.98	Si 28.09	P 30.974	S 32.06	Cl 35.453	
4	K 39.102	Ca 40.08			As 74.92	Se 78.96	Br 79.909	
5	Rb 85.47	Sr 87.62	In 114.82	Sn 118.69	Sb 121.75	Te 127.60	I 126.90	
6	Cs 132.90	Ba 137.84	Tl 204.37	Pb 207.19	Bi 208.98			

Describe the differences between Mendeleev's Periodic Table and the modern-day version.

[3]

### Total Marks for Question Set 18: 3

- Mendeleev's table has no noble gas / Group 8
- Mendeleev's table has no transition metals
- Mendeleev's table has gaps for undiscovered elements
- Mendeleev's table is ordered by atomic mass whereas modern-day table is ordered by atomic number.

# The Periodic Table of the Elements

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(0)										
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 <b>H</b> hydrogen 1.0	2 <b>He</b> helium 4.0	3 <b>Li</b> lithium 6.9	4 <b>Be</b> beryllium 9.0	5 <b>B</b> boron 10.8	6 <b>C</b> carbon 12.0	7 <b>N</b> nitrogen 14.0	8 <b>O</b> oxygen 16.0	9 <b>F</b> fluorine 19.0	10 <b>Ne</b> neon 20.2	11 <b>Na</b> sodium 23.0	12 <b>Mg</b> magnesium 24.3	13 <b>Al</b> aluminium 27.0	14 <b>Si</b> silicon 28.1	15 <b>P</b> phosphorus 31.0	16 <b>S</b> sulfur 32.1	17 <b>Cl</b> chlorine 35.5	18 <b>Ar</b> argon 39.9
19 <b>K</b> potassium 39.1	20 <b>Ca</b> calcium 40.1	21 <b>Sc</b> scandium 45.0	22 <b>Ti</b> titanium 47.9	23 <b>V</b> vanadium 50.9	24 <b>Cr</b> chromium 52.0	25 <b>Mn</b> manganese 54.9	26 <b>Fe</b> iron 55.8	27 <b>Co</b> cobalt 58.9	28 <b>Ni</b> nickel 58.7	29 <b>Cu</b> copper 63.5	30 <b>Zn</b> zinc 65.4	31 <b>Ga</b> gallium 69.7	32 <b>Ge</b> germanium 72.6	33 <b>As</b> arsenic 74.9	34 <b>Se</b> selenium 79.0	35 <b>Br</b> bromine 79.9	36 <b>Kr</b> krypton 83.8
37 <b>Rb</b> rubidium 85.5	38 <b>Sr</b> strontium 87.6	39 <b>Y</b> yttrium 88.9	40 <b>Zr</b> zirconium 91.2	41 <b>Nb</b> niobium 92.9	42 <b>Mo</b> molybdenum 95.9	43 <b>Tc</b> technetium	44 <b>Ru</b> ruthenium 101.1	45 <b>Rh</b> rhodium 102.9	46 <b>Pd</b> palladium 106.4	47 <b>Ag</b> silver 107.9	48 <b>Cd</b> cadmium 112.4	49 <b>In</b> indium 114.8	50 <b>Sn</b> tin 118.7	51 <b>Sb</b> antimony 121.8	52 <b>Te</b> tellurium 127.6	53 <b>I</b> iodine 126.9	54 <b>Xe</b> xenon 131.3
55 <b>Cs</b> caesium 132.9	56 <b>Ba</b> barium 137.3	57-71 lanthanoids	72 <b>Hf</b> hafnium 178.5	73 <b>Ta</b> tantalum 180.9	74 <b>W</b> tungsten 183.8	75 <b>Re</b> rhenium 186.2	76 <b>Os</b> osmium 190.2	77 <b>Ir</b> iridium 192.2	78 <b>Pt</b> platinum 195.1	79 <b>Au</b> gold 197.0	80 <b>Hg</b> mercury 200.6	81 <b>Tl</b> thallium 204.4	82 <b>Pb</b> lead 207.2	83 <b>Bi</b> bismuth 209.0	84 <b>Po</b> polonium	85 <b>At</b> astatine	86 <b>Rn</b> radon
87 <b>Fr</b> francium	88 <b>Ra</b> radium	89-103 actinoids	104 <b>Rf</b> rutherfordium	105 <b>Db</b> dubnium	106 <b>Sg</b> seaborgium	107 <b>Bh</b> bohrium	108 <b>Hs</b> hassium	109 <b>Mt</b> meitnerium	110 <b>Ds</b> darmstadtium	111 <b>Rg</b> roentgenium	112 <b>Cn</b> copernicium	113 <b>Nh</b> nihonium	114 <b>Fl</b> flerovium	115 <b>Mc</b> moscovium	116 <b>Lv</b> livermorium	117 <b>Ts</b> tennessine	118 <b>Og</b> oganesson

Key  
atomic number  
Symbol  
name  
relative atomic mass

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