Chapter Summary Worksheet

Chapter 2
Atomic structure and the periodic table

Print out and complete this worksheet to generate a summary for Chapter 2.

1 Question 1 is about four sets of ionisation energies:

A 496, 738, 578, 789, 1012, 1000

B 578, 1817, 2745, 11 578, 14 831, 18 378

C 1086, 2353, 4621, 6223, 37 832, 47 278

D 1314, 1000, 941, 869, 812

(i) Which are the values of the successive ionisation energies for an element in group 4 of the periodic table?

- ☐ **A**
- ☐ **B**
- ☐ **C**
- ☐ **D**

(ii) Which are the values for the first ionisation energies of consecutive elements in the same period?

- ☐ **A**
- ☐ **B**
- ☐ **C**
- ☐ **D**

(iii) Which are the values for the first ionisation energies of elements in the same group, as the group is descended?

- ☐ **A**
- ☐ **B**
- ☐ **C**
- ☐ **D**

2 Which is the transition that causes a line of the *lowest* frequency in the emission spectrum of hydrogen?

- ☐ **A** second orbit to first orbit
- ☐ **B** third orbit to first orbit
- ☐ **C** third orbit to second orbit
- ☐ **D** fourth orbit to second orbit

3 Which is the number of different orbitals in the third quantum shell?

- ☐ **A** 3
- ☐ **B** 8
- ☐ **C** 9
- ☐ **D** 18

4 Which is the ion with the *smallest* radius?

- ☐ **A** Na^+
- ☐ **B** Al^{3+}
- ☐ **C** F^-
- ☐ **D** O^{2-}

5 Which is the equation that relates to the first electron affinity of chlorine?

- ☐ **A** $\frac{1}{2}Cl_2(g) + e^- \rightarrow Cl^-(g)$
- ☐ **B** $Cl(g) + e^- \rightarrow Cl^-(g)$
- ☐ **C** $Cl(g) - e^- \rightarrow Cl^-(g)$
- ☐ **D** $Cl_2(g) + 2e^- \rightarrow 2Cl^-(g)$

6 The mass spectrum of bromine has lines at *m/e* values of 158, 160 and 162, but none at 159 or 161. What causes the line at 160?

- ☐ **A** $(^{80}Br–^{80}Br)^+$
- ☐ **B** $(^{80}Br–^{80}Br)$
- ☐ **C** $(^{79}Br–^{81}Br)^-$
- ☐ **D** $(^{79}Br–^{81}Br)^+$

© Philip Allan Updates