Chapter Summary Worksheet

Chapter 6
Bonding

Print out and complete this worksheet to generate a summary for Chapter 6.

1 Metals conduct electricity because:

- ☐ **A** the ions are arranged in a lattice.
- ☐ **B** the electrons constantly are moving around the nuclei.
- ☐ **C** the electrons are delocalised and move under an applied potential.
- ☐ **D** the ions can slide one layer over the other.

2 Which metal forms the strongest metallic bond?

- ☐ **A** aluminium
- ☐ **B** magnesium
- ☐ **C** potassium
- ☐ **D** sodium

3 Which is a property of *all* metals?

- ☐ **A** They form cations.
- ☐ **B** They have high first ionisation energies.
- ☐ **C** They react with acids to produce hydrogen.
- ☐ **D** They react with oxygen to give acidic oxides.

4 The ionic radius of Na^+ is

- ☐ **A** the sum of the ionic radii in sodium chloride
- ☐ **B** smaller than the metallic radius of sodium
- ☐ **C** larger than the metallic radius of sodium
- ☐ **D** smaller than the ionic radius of the Mg^{2+} ion

5 Which substance has the highest exothermic lattice energy?

- ☐ **A** NaCl(s)
- ☐ **B** KCl(s)
- ☐ **C** CaS(s)
- ☐ **D** CaO(s)

6 Which substance has the greatest difference between the theoretical and the Born–Haber lattice energies?

- ☐ **A** MgI_2
- ☐ **B** $CaCl_2$
- ☐ **C** KCl
- ☐ **D** NaI

7 A double bond is

- ☐ **A** two σ-bonds
- ☐ **B** one σ-bond and one π-bond
- ☐ **C** the sideways overlap of two *p*-orbitals
- ☐ **D** when the four shared electrons are on the line between the two nuclei

8 Which is the strongest covalent bond?

- ☐ **A** N–H
- ☐ **B** P–H
- ☐ **C** O–H
- ☐ **D** S–H

9 Which represents the process when the atomisation of bromine is measured?

- ☐ **A** $Br_2(l) \rightarrow 2Br(g)$
- ☐ **B** $Br_2(g) \rightarrow 2Br(g)$
- ☐ **C** $\frac{1}{2}Br_2(l) \rightarrow Br(g)$
- ☐ **D** $\frac{1}{2}Br_2(g) \rightarrow Br(g)$

10 Which represents the process of the second ionisation energy of oxygen?

- ☐ **A** $O(g) + 2e^- \rightarrow O^{2-}(g)$
- ☐ **B** $O^-(g) + e^- \rightarrow O^{2-}(g)$
- ☐ **C** $O(g) \rightarrow O^{2+}(g) + 2e^-$
- ☐ **D** $O^+(g) \rightarrow O^{2+}(g) + e^-$

11 Which does **not** contain a dative covalent bond?

- ☐ **A** PCl_4^+
- ☐ **B** NH_4^+
- ☐ **C** PCl_6^-
- ☐ **D** Al_2Cl_6

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