

Year 12 Chemistry 21/06/21 – 25/06/21

WORKSHEET 4

Day 1

1. Which of the following shapes of molecule is asymmetrical?
 - A. Linear
 - B. Tetrahedral
 - C. Trigonal planar
 - D. Trigonal pyramidal
2. Which of the following solids is composed of positive and negative ions held by strong electrostatic forces of attraction?
 - A. Graphite
 - B. Diamond
 - C. Silicon dioxide
 - D. Sodium chloride
3. Which of the following type of solid has low melting and boiling points?
 - A. Ionic
 - B. Metallic
 - C. Molecular
 - D. 3-dimensional network

Day 2

4. Graphite is a very good example of a covalent substance. A property of graphite is that it
 - A. can conduct electricity.
 - B. is highly soluble in water.
 - C. has very low melting point.
 - D. is very hard and difficult to break.

5. State a reason for the following statements based on their structure and bonding:
- (i) Diamond is a non-conductor of electricity.
 - (ii) Crystals of sodium chloride are brittle.
 - (iii) Linear solids like plastic sulphur are soft and stretchable.

Day 3

6. Define electronegativity.
7. State a reason for the following:
- (i) Iodine (I_2) sublimes at a very low temperature
 - (ii) Sodium chloride (NaCl) is a non-conductor of electricity in solid state.
 - (iii) Graphite is soft and slippery.

Day 4

8. State whether the following bonds are polar or non-polar.
- (i) C – C
 - (ii) C – Cl
9. Which of the following statements is true regarding the two isotopes of chlorine, $^{35}\text{Cl}_{17}$ and $^{37}\text{Cl}_{17}$? The number of
- A. protons in each isotope is different.
 - B. neutrons in each isotope is the same.
 - C. electrons in each isotope is different.
 - D. neutrons in each isotope is different.

10. Which of the following properties best describes an ionic compound?
- A. They usually have high melting points.
 - B. They are highly soluble in all organic solvents.
 - C. They usually have low melting and boiling points.
 - D. They are good conductors of electricity in solid state.

Day 5

11. Which of the following elements has the highest electronegativity?
- A. Boron
 - B. Oxygen
 - C. Fluorine
 - D. Nitrogen
12. Explain why the carbon dioxide (CO_2) molecule is non-polar even though it contains polar bonds.
13. Justify its shape using the valence shell electron pair repulsion (VSEPR) theory.