Year 12 Chemistry

WORKSHEET 3

Day 1

1. Which of the following Group I element is most electronegative?

   A. Hydrogen (H)
   B. Lithium (Li)
   C. Sodium (Na)
   D. Potassium (K)

2. The compound which has two lone pairs of electrons on the central atom is

   A. carbon dioxide (CO_2).
   B. boron trichloride (BCl_3).
   C. hydrogen sulphide (H_2S).
   D. carbon tetrachloride (CCl_4).

3. Metallic solids conduct electricity due to the presence of

   A. freely moving ions.
   B. giant metallic structure.
   C. freely moving electrons.
   D. electrostatic forces of attraction.

Day 2

4. The trend in electronegativity changes across the Period and down the Group of a Periodic Table.
   (i) State the trend in electronegativity across the Period of a Periodic Table.

   (ii) Provide a reason for the trend stated in part (i) above.

Day 3

5. Draw the Lewis structure of oxygen gas molecule (O_2) and determine its shape.

6. Based on the structure, explain why ammonia is a polar molecule.

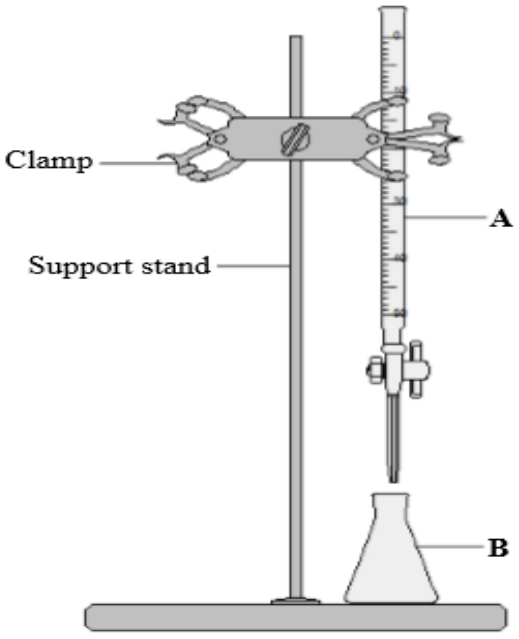
Day 4

7. The electron group geometry for water (H_2O) is

A. linear.
B. bent shape.
C. tetrahedral.
D. trigonal planar.

8.

(b) Identify the laboratory equipments, **A** and **B**, in the figure below.



(c) A standard solution is used in titrations. Define the term **standard solution**.

Day 5

9. Briefly explain the following statements:

(i) Graphite is a good conductor of electricity.

(ii) Isotopes of the same element show similar chemical properties.

(iii) The carbon tetrachloride (CCl_4) molecule is non-polar even though it contains polar bonds.