**CHEMISTRY FORM THREE**

**MARKING SCHEME:**

1. (a) NO-3

(b) (i) Copper (II) or Cu2+

 (ii) Copper (II) oxide or CuO.

1. (a) P1V1 = P2V2

(b) P1 = 800mmHg P2 = 720mmHg

 V1 = 375 cm3 V2 = ?

 P1V1 = P2V2

V2 = $\frac{P1V1}{P2}=\frac{800 ×375}{720}=416.7cm^{3}$

1. (i) A – Covalent

 B – Dative or co-ordinate

(ii) Aluminium chloride undergoes hydrolysis with production of hydrated ions which are responsible for the PH of 3.

1. R.A.M = $\frac{Mass.no ×Abundance}{Total abundance}$

Let the abundance of Li-6 be x

Relative abundance of Li-7 will be 100-x.

.: 6.94 = $\frac{\left(6×x\right)+ 7(100-x)}{100}$

6x + 700 – 7x = 694

X = 6%

Li-6 has 6%, Li-7 has 94%

1. (a) Magnesium is more reactive than lead hence removes oxygen from lead oxide while lead cannot remove oxygen from magnesium oxide hence no reaction.

(b) (i) Magnesium.

 (ii) Lead oxide.

1. A mixture of hydrogen and air explodes when ignited Hydrogen is not readily available hence expensive.
2. (i)

(ii)

1. (a) 7

(b) Group V

 Period 2

1. (a) 3Mg(s) + N2(g) → Mg3N2(s)

(b) Sodium hydroxide.

(c) Argon/Neon/ Xenon /Krypton

It’s stable hence does not react under normal conditions.

1. (i) Hygroscopy

(ii) Amphoterism.

(iii) Malleability.

1. Mass of chloride used = 14.25 – 3.6g = 10.65g.

Element Mg Cl

Mass (g) 3.6 10.65

R.A.M 24 35.5

Moles 3.6 10.65

 24 35.5

 0.15 0.3

 0.15 0.15

Mole ratio 1:2

Formula MgCl2

1. (a) Noble gases

(b) D2SO4

(c) (i) D

 (ii) E

(d) Ionic bond. It involves transfer of electrons from B to H.

(e) D

(f) During ionization, an extra electron is added to the energy shell which reduces the effective nuclear force of attraction.

(g) Placed in group VI and period 3.

(h) G forms a simple molecular structure with oxygen while L forms a giant atomic (covalent) structure with strong covalent bonds which require more heat to break.

(i) I is larger than C. I has a lower effective nuclear charge due to smaller number of protons hence weaker attraction between the outermost energy level and the nucleus.

(j) It increases across from J to L due to increase in the effective nuclear charge from J to L.