CHEMISTRY 2021/2022 FORM 2 TERM 1 OPENER EXAM-AUGUST MARKING SCHEME (70 mks)

- (1) Solid carbon (iv) oxide ,iron (III) chloride
 - (ii) zinc oxide and nitric (v) acid
- 2. Nitrogen or inert gases
- (ii) 200-160/200*100=40/200X100=20%
- (iii) Brown copper turnings turned black copper(II) oxide
- iv) copper +Oxygen -----> Copper (II) oxide
- (3i) Simple distillation
- ii) chromatography
- iii) Sublimation
- iv) Fractional distillation
- 4 a) Hydrogen
- b) upward delivery/download displacement of air

Hydrogen gas is less denser than air

- C) Zinc +dilute hydrochloric acid ---->zinc chloride +hydrogen gas
- d I)Formation of an insoluble coating layer of calcium sulphate that prevents further reaction from taking place
- (ii) Nitric (v) acid oxidises hydrogen gas formed to water
- e) Acts as a drying agent
- f) Concentrated sulphuric (vi) acid
- 5.Magnesium + Oxygen -----> Magnesium Oxide Magnesium + nitrogen ----> Magnesium nitride
- (6) Hydrogen gas
- b) it is basic in nature
- (c) Calcium + water ----> Calcium hydroxide +hydrogen gas
- (d) A white precipitate will be formed.
- 7. a) Electrons

Protons

Neutrons

b)Atoms have equal number of protons and electrons. Protons are positively charged while electrons are negatively charged thus electrically neutral.

c)i)34-18=16

- ii)2.8.6
- iii)Period 3-has three occupied energy levels

Group VI-has 6 electrons in the outermost energy level

- 8. a)To generate steam
 - b)Magnesium + steam ---->Magnesium oxide + hydrogen gas
 - c)Iron + steam -----> Tri-iron tetra oxide + hydrogen gas
- 9.a)Hydrated iron (III) oxide
- b)(i)Set up(i). This is because iron is more reactive than copper hence iron reacted with water. and oxygen.
- (ii)Sacrificial protection
- (iii)Painting cuts off oxygen gas and moisture from coming into contact with iron metal.
- 10.a) To hold the crucible during heating
 - b)Used for drying or keeping substances free from moisture.
 - c)Used for even distribution of heat when heating substances in beakers or flasks.
- 11.i)Sodium peroxide
- ii)Sodium peroxide + water ----->sodium hydroxide + oxygen gas
- iii) Using a glowing splint. Oxygen relights a glowing splint.
- iv) Used in hospitals by patients with breathing difficulties.

Used by deep sea divers and high mountain climbers.

- 12) A liquid suspected to be water turns white anhydrous Copper (II) sulphate to blue hydrated copper (II) Sulphats turns blue Cobalt (II) chloride papper to pink
- ii) The purity of water can be tested by checking whether it boils at 100 oC
- 13) The product from stinging nettle plant is acidic hence aqueous ammonia solution being basic neutralizes the acidic product
- 14) Magnesium is more reactive than lead hence has a higher affinity of oxygen. It reduces lead
- (II) oxide to lead.Lead is less reactive than Magnesium thus can not displace oxygen in Magnesium Oxide.
- (b) Magnesium + lead (II) oxide ----- Magnesium Oxide + lead
- c) Magnesium
- (ii) Lead
- (iii) Redox reaction
- 15a) Physical
- (b) Chemical
- (c) physical
- (d) Chemical
- (e) Chemical