

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) $200-160/200 \times 100 = 40/200 \times 100 = 20\%$

(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) Sulphate turns blue Cobalt (II) chloride paper 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

