**TERM TWO 2017 FORM 3 CHEMISTRY**

**PP1 MARKING SCHEME**

1. Deflagrating spoon – used for holding solid substances during burning.
2. Add excess copper to nitric (IV) acid and filter the mixture. Add excess Na2CO3 solution to the filtrate and filter to obtain the residue of copper (ii) carbonate.
3. 1. Lead (ii) sulphate / PBSO4 (s)
   2. PB2+ + SO42- PBSO4(s)
   3. Deliquescence
   4. Defrosting of roads in very cold climates
5. Under the same conditions of temperature and pressure, the rate of diffusion of a gas is inversely proportional to the square root of its density.
6. TSO2 = MSO2 TSO2 = 64 = 1.4545

TC02 MCO2 OR TC02  44 1

SO2= 32 + 32 = 64 TSO2 = 1.4545 X 30

CO2 = 12 + 32 = 44 1

= 43. 6363 seconds

1. Oxidizing agent – SO2 – Sulphur (iv) oxide

Reducing agent – H2S – Hydrogen sulphate

1. 1. Metallic bond
   2. Group I has one electron in its outermost occupied energy level.
2. 1. Minimum energy required to remove completely an electron from the outermost energy level of an atom in gaseous state.
   2. F- It is less electro positive. It requires more energy to lose electrons.
3. Mass of CH3COO4 = 25 X 1.05 = 26.25

Mass per liter = 26.25 x 2 = 52.5

Molar mass of CH3COO4 = 60

Molarity = 52.5 = 0.875 mole/dm3

60

Or

Mass of CH3COO4 = 25 X 1.05 =26.25

Molar mass = 60

Therefore: No of moles = 26.25 = 0.4375

60

Molarity = (0.4375 x 1000) = 0.875 molars /dm3

500

1. 6.016 x 7.016 (100 – x) = 6.939 x 100

6.015 + 701.6 – 7.016x = 693.9

- 1.001x = -7.9

X = 7.892

Most abundant isotope = 100 – 7.892 = 92.108%

1. 1. Used for drying or keeping substances free from moisture
   2. Used for supporting crucible during heating.
2. 1. Silicon (iv) oxide has a giant atomic structure with strong covalent bond. Between carbon (iv) oxide molecules are weak van der Waals forces which breaks at room temperature.
   2. Used in the extraction of less reactive metals e.g. iron.
3. 1. Is a group of compounds with similar chemical properties, chemical formulae and exhibit gradual change in physical properties.
   2. Pentane

2- Methylbotane

2,2- dimethlylptopane

1. Heat the mixture and collect the sublimate of Fecl3 on a watch glass. Add water to the remaining mixture and stir to dissolve KCL, filter to obtain ZnO as a residue and KCl as a filtrate, evaporate the filtrate to obtain KCL crystals.
2. 1. Hexane
   2. 2 – methyl propane
3. 1. Charred black mass of carbon. H2SO4 (l) removes elements of water from sugar leaving carbon.
   2. C(s) + 2H2SO4 (l) = 2SO2 (g) + CO2 (g) + 2H2O (l)
4. 1. 2PB (NO3)2 (s) heat 2PBO(s) + 4NO2(g) + O2(g)
   2. No of moles 2NO2 = 0.58 =0.0242

24

No of moles PB (NO3)2 = 0.02417 X ½

= 0.01208

Mass of PB (NO3)2 = 207 + (14 +48)2

= 331

Mass of PB (NO3)2 = 0.01208 X 331

= 3.99848

=4.0g

1. * + 1. B
       2. 2- It hydrolysis in water to produce H+(aq)
2. 1. Existence of an element in more than one form in the same physical state
   2. (I ) Graphite
      * 1. High melting point and high boiling point
3. Mass of carbon = 12 x 5.94 = 1.62

44

Mass of hydrogen = 2 x 2.43 = 0.27

18

Total mass = (1.62 + 0.27) = 1.89

0.0675 moles of CH =1.89

Therefore 1 mole (RFM) = 1.89 = 28

0.0675

|  |  |  |
| --- | --- | --- |
| **Element** | **C** | **H** |
| Mass in gm | 1.62 | 0.27 |
| R.A.M | 12 | 1 |
| Moles | 1.62  12 = 0.135 | 0.27  1 = 0.27 |
| Mole ratio | 1:2 | |

(CH2) n  = 28 therefore MF – C2H4

N=2

1. P1V1 = P2V2

T1 T2

152 x 6 = P2 x3

250 500

P2 = 152 x 6x500

250 x 3

P2 = 608 Hg

1. 1. Bromine – its melting point is lower than room temperature while its boiling point is above room temperature.
   2. Because of stronger intermolecular forces of attraction as it increases with increases in size of molecules, iodine molecules are bigger.
2. 1. (i) Pbo (g) + H2 (g) Pb (s) + H2O (g)

2H2 (g) + O2 (g)  2H2O (g)

* + - 1. Cacl2 / CaO

1. 2NaO4 (aq) + H2SO4 (aq) Na2So4 (aq) + 2H2O (l)

*O*

*H*

*H*

Molarity = g/ liters = 8 0.2m

Mm 40

Moles of NaO4  = 0.2 X 25 = 0.005 moles

1000

Moles of Naso4 = 0.005 = 0.0025

2

Hence molarity = 0.0025 x 1000

10

= 0.25 moles / litre

1. A deliquescent substance is one which absorbs two much water fro0m the atmosphere to form a solution.

Efflorescent substances are one which loses its water of crystallization to air without heating.

1. 1. This is a solution which has a replaceable hydrogen ions
   2. Pb 2 + (aq) + CO3 2- (aq)  Pb CO3(S)
2. 1. Liquid
   2. Through repeated compression (200 atoms) and expansion of air which cools it to liquid at – 2000c
   3. Argon