**SUNRISE ONE EXAM**

**CHEMISTRY FORM 3**

**MARKING SCHEME**

1. It produces less heat ✓1

 Makes apparatus dirty✓1

 2. a) Maltose✓2

 Galactose for all the three/1mk for 2

 Fructose

1. Galactose✓1

Doesn’t move fast hence heavy. ✓1

1. a) Hydrogen gas. ✓1

b) ZnO(s)  + 2HCl(aq) ZnCl2+ H2O(l) ✓1

1. It’s a stronger oxidizing agent and so would oxidize some of the gas formed

to water. ✓1

4. Number of neutrons – 1✓1

 Number of electrons – 0✓1

1. X - residue✓1
2. filtrate✓1

6.a) The volume of affixed mass of a gas is directly proportional to its absolute
 temperature at constant pressure✓1

 (Award zero mark if the word absolute temperature is not mentioned)

 b)

By Substituting, we get

750x36 = 1000x72 300 T2

 P1 = 750mmhg

 V1 = 36cm3

 T1 = ( 27 + 273) = 300k

 P2= 1OOO mmHg

 V2 =3 x 2 = 72cm3

 *½ mk*

 T2 = ?

 ( ½ mk)

 T2 = 1000 x 72 x 300

 750 x 3

 P1 V1 = P2 V2 ½ mk = 800k

 T1 T2 Or 800 – 273 = 527°C

1. a) E✓1

b) C=8✓1

 A=4✓1

 c) D✓1

 d) DF2✓1

**8.** (a) CO2(g) + C(s) 2CO(g) ✓1

(b) The Carbon (ii) oxide (CO) produced at Y burns with blue flame in the air (oxygen) at the top*.*

2CO(g)+ O(g)——>2CO(g) ✓1

(c) The charcoal stoves should be used in well ventilated rooms.✓1

9. (i)



 O21 ½ H2Ob ½ dia ½

(ii)  balanced, correct symbol✓1

1. (a) A: 2, 8, 2✓1

 B: 2, 8, 7✓1

 (b) AB2✓1

 11. a) P= Sublimation // sublimate formation✓1

 R= Solidification //freezing ✓1

 b) Benzoic acid/Iron (III) chloride/Aluminium chloride/iodine✓1

1. a) Y – covalent bond✓1

 Z – hydrogen bond✓1

 b) Water has stronger hydrogen bonds which are not present in methane ✓1

 13. a) – black copper (II) oxide turns brown ✓ 1

 - litmus solution turns red  ✓ 1

 b) CuO + C Cu + CO ✓ 1

 14. 92.2 x 28.0 + 4.7 x 29.0 + 30 x 3.1✓1

 100 100 100

 = 25.816 + 1.363 + 0.930✓1

 =28.108 ✓1

15. add water to the mixture ✓1 kcl dissolves✓ ½ while CUO does not ✓ ½ Filter ✓ ½ and heat the filtrate to dryness ✓ ½

 16. a) X: Fractionating column Y: Liebig condenser✓1

1. (i) A - Very small diameters hole to direct the laboratory gases into the parallel 1

(ii) B - Heavy for better support 1

(iii) To enable the reaction inside the vessel to be visible ✓1

Glass does not react with chemicals or glass does not rust

1. Add ethanol to the mixture ½ . Filter ½ to remove X as the residue . Evaporate ½ the filtrate to obtain crystals of Z
2. i. A : Brine// concentrated sodium chloride solution✓1

 B: Calcium oxide✓1

ii. The reaction is exothermic hence temperature has to be lowered by cold

 water ✓1

iii. Filtration✓1

 iv. Carbon // coke 1mk // Calcium carbonate✓1

 v. 2 NaHCO3(s) Na2CO3(s) + CO2(g) + H2O (g) ✓1

 NB: Heating ✓1

1. Dropping funnel ✓1 ( reject thistle funnel )

Used for delivering liquid substance in controlled amount ✓1

 21. (a) To ensure complete reaction of the sodium carbonate✓1

(b) ✓1

 (c) (i) 24, 000cm3 is equivalent to 1 mole

  ✓ = 0.0142 moles ✓

 (ii) Mole ratio from the equation

 1 mole of Na2CO3 produces ✓1 mole of CO2

 0.0142 moles of CO2(g) are produced by ✓

 = 0.0142moles 2 mks

 (iii) Mass of Na2CO3 that reacted

 1 mole = 106g

  moles ✓ = 1.505g✓ 2 mks

 (iv) Percentage impurity

 ✓ = 16.39%✓ 2 mks

1. a) Existence of a substance in two or more forms without a change of state

b) (i) Graphite✓1

 (ii) Conducts electricity, ✓1contains delocalised electrons. ✓1

 OR

 soft and slippery ✓1 Hexagonal layer are held together by weak van der waals

 forces ✓1