***SET 5***

**233/1**

**CHEMISTRY**

**PAPER 1**

**MARKING SCHEME**

**Question 1**

1. 2 √1mk
2. Ionic √1mk

 **Question 2**

1. * Crush the flower petals √ ½ mk (red or blue) in a mortar using a pestle while adding acetone √ ½ mk or ethanol
	* Decant √ ½ mk the solution
	* Add 2 drops of the extract √ ½ mk prepared into an acid or base.
2. Solution turns to pink √1mk

**Question 3**

1. C √1mk
2. A √1mk
3. B √1mk

 **Question 4**

 $\frac{V1}{T1}= \frac{V2}{T2}$

$v\_{2 }$ = $\frac{V1 T2}{T1}$ = $\frac{975 x 298}{278}$ √ ½ mk

 = 1045.143cm3 √ ½ mk

* The balloon will burst√1mk

 **Question 5**

1. Dinitrogen tetraoxide √1mk
2. insert a glowing splint √ ½ mk inside the gas jar the splint relights √ ½ mk
3. 2Pb(NO3)2(S) → PbO(s)   + 4NO2(g) + O2 (g) √1mk

 **Question 6**

1. H H

 | |

─ C ─ C ─ √1mk

 | |

 H CH n

1. Polypropene √1mk

 **Question 7**

1. Deflagrating spoon √1mk
2. Magnesium oxide √ ½ mk and Magnesium nitride √ ½ mk
3. 2Mg(s)  + O2(g) → 2MgO(s) √1mk

3Mg(s) + N2(g) → Mg3N2(s) √1mk

**Question 8**

1. Salt that contains √1mk replaceable hydrogen in it.
2. Salt that does not contain √1mk any replaceable hydrogen in it.

**Question 9**

 C H

Mass of C in Co2 $\frac{12}{44} x 0.88=0.24$ Mass of H in H2O $\frac{2}{18} x 0.36=0.04$ √ ½ m

R.A.M 12 1

Moles $\frac{0.24}{12}=0.02$ $\frac{0.04}{1}$ = 0.04 √ ½ mk

Mole ration $\frac{0.02}{0.02}=1$ $\frac{0.04}{0.02}$ = 2 √ ½ mk

E.F = CH2

Therefore

(CH2)n = 56

 14n = 56

 n = 4 √ ½ mk

M.F = (CH2)4 = C4H8 √ 1mk

**Question 10**

1. Direction of flow of cold water √ 1 mk into and out of the lie big condenser is wrong.
2. Distillation √1 mk
3. Ethanol and water are miscible √ ½ mk

 Their boiling points are different. √ ½ mk

**Question 11**

1. Black copper (ii) oxide turns to brown √ 1 mk

Droplets of a colourless liquid √ 1mk on the cooler parts of the test tube. √1m

1. Water √ 1mk
2. H2(g)  + CuO(s) → Cu(s) + H2O(l)  √1mk

**Question 12**

X

X

X

X

O

C

O

 √1mk

Mg

2+

X

X

X

X

X

X

X

-

2

1.

 √1mk

**Question 13**

* Its inert √1mk
* Low density / light √1mk

 **Question 14**

J – sodium Chloride √1m

K – hydrogen chloride √1mk

L – hydrogen √1mk

**Question 15**

1. There was no heat √1mk
2. PbI2 melted √1mk when heated, ions became free and mobile √1mk thus conducting current.

**Question 16**

1. H = calcium carbonate √1mk

J = calcium oxide √1mk

1. Tests for the presence of carbon (iv) oxide √ 1mk

 **Question 17**

C – iron (ii) sulphide √ 1m

Gas B – hydrogen sulphide √ 1m

Substance A = Iron fillings √ 1mk

 **Question 18**

 Q H2O

 125 18

 50 36

Moles $\frac{50}{125}$ = 0.4 $\frac{36}{18}=2$ √ ½ mk

Ratio $\frac{0.4}{0.4}=1 $ : $\frac{2}{0.4}=5$ √ ½ mk

 X = 5 √ 1mk

**Question 19**

* Molten state √ ½ mk / Liquid
* Solution state √ ½ mk aqueous

**Question 20**

1. P – Coppper (ii) carbonate √ 1mk
2. Q – Copper (ii) oxide √ 1mk

**Question 21**

NaOH(aq) + HCl(aq) → NaCl(aq) + H2O(l)

 Moles of acid $\frac{30 x 0.05}{1000}=0.015mol $ √ ½ mk

Moles of base = 0.015mole √ ½ mk

Moles of NaOH in 1000cm3 = $\frac{1000 x 0.015 }{25}$ √ ½ mk

= 0.6M

Concentration = 0.6 x 40 √ ½ mk

 = 24g/l

**Question 22**

Z, Y,X √ 1mk

**Question 23**

1. 2:8 √ 1mk
2. 1. WX2 √ 1mk  | CaCl2
	2. Bond – ionic √ ½ mk

Structure – Giant ionic structure √ 1mk

**Question 24**

1. 1. Yellow deposit √ ½ mk

 Bromine water is decolorized √ ½ mk

* 1. H2S(g) + Br2(aq)  → 2HBr(aq) + S(s) √ 1mk
	2. Turns a filter paper soaked in lead(ii) nitrate solution black √ 1mk *(accept any other correct test)*

**Question 25**

Mass of oxide = 6.40 – 4.50 = 1.9g

Mass of metal = 6.02 – 4.50 = 1.52g √ ½ mk

Mass of oxygen = 1.9 – 1.52 = 0.38g √ ½ mk

 Cu O

 1.52 0.38

 64 16

 $\frac{1.52}{64}=0.02375$ $\frac{0.38}{16}$ = 0.02375 √ ½ mk

 Ration 1 : 1

 E.F. = CuO √ 1mk

1. (64 + 16) n = 80 √ ½ mk

N = 1

Therefore

 Molecular formula = CuO √ ½ mk

**Questions 26**

1. NH4Cl(s) + Ca(OH)­2(s)  → CaCl2(s) + 2NH3(g) + 2H2O(l) √ 1mk
2. Acts as a drying agent. √ 1mk
3. Upward delivery √ ½ mk since the gas is the less √ ½ mk dense than air.

**Question 27**

1. 1. G – concentrated hydrochloric acid √ 1mk
	2. Concentrated sulphuric (vi) acid √ 1mk
2. Denser that air. √ 1mk