**FORM FOUR END TERM 2 - PAPER 2 MARKING SCHEME**

**CHEMISTRY FORM 4.**

1. (a) (i) A

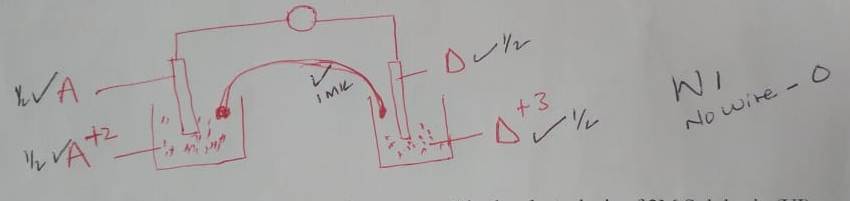
(ii) -0.44- -0.76{ ½ )

=0.32V { ½ )

(iii)

A B,E NB/ all 1mk, any 2 ½

(iv)



(b) (i)

2H(aq)++2eH2(g

(ii)Introduce a glowing splint and it will relight.

(c) Mass deposited=QRAM/FC

Let charge be C

1.9=[0.6x1.5x60x60] x113/[96500\*C]

C=[0.6x1.5x60x60x113]/[1.9x96500]

C=1.9968 or ~ +2

**OR**

**Q= IT**

**0.6X1.5X60X60=3240**

**If 3240=1.9g**

**? =113**

**[3240X113]/1.9=192694.73c**

**192694/96500=1.9968**

**~+2**

**2.(a)**

* **Haematite**
* Magnetite

**(b) reaction of coke with oxygen is highly exothermic**

**(c)**

* Low density.
* Immiscible with iron.

**(d) CO2 + C ……… 2CO**

**(e) 2Fe2O3 + 3C ……….4Fe + 3CO2**

**f) cast iron is used to make manhole covers**

**used as a catalyst in harber process**

**making cutlery and surgical equipments**

**(g) SO2 causes acidic rain**

**CO2 Causes global warming**

**(h)**(i) It would decrease{1mks},increase in temperature favours endothermic reactions ½ and therefore reverse reaction is favoured ½

(ii)Vanadium (iv) oxide ~**reject platinum.**

(iii Manufacture of dyes{1/2mks}

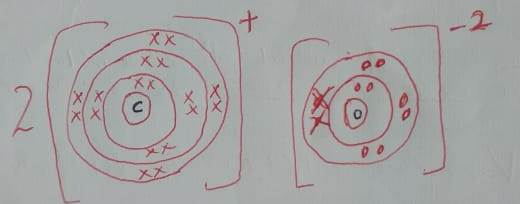
Filling batteries{1/2mks}

**Any other correct answer**

**3.**(a)(i)A 2,8,1

D 2,8,7

(II)



(b)**Yshown in the table,period4 group vi**

(c)(i)C is more reactive than A{1mks}

C has a larger atomic radius/lower ionization energy and therefore easily loose the outer most electron{1mks}

(ii)

A has a larger atomic radius than B /B has a shorter atomic radius than A[{1mks}B has more protons than A and therefore energy level attracted strongly towards the nucleus.{!mks}

(iii)Oxide of G has the higher melting point than the oxide of D.{1mks} Because oxide of G has a giant ionic structure with strong ionic bond while oxide of D has simple molecular structure with weak van der waals forces.{1mks}

**(c) 2**Na +2HCl 2NaCl +H2 1mk

Moles of A =

0.92/23 ( ½ )

=0.04moles

Mole ratio

2 : 1

Moles of hydrogen

0.04/2

= 0.02 ( ½ )

Volume of hydrogen

0.02 X24 = 0.48dm3 or 480cm3

**4.**(a) The reaction would start and then stop immediately {1mks}

Because calcium sulphate formed is insoluble and therefore forms a coating on calcium preventing further reaction ( 1mk)

(b)(i)Add a sample to;

White anhydrous **copper (ii) sulphate**, it would turn to blue.

**OR**

Blue anhydrous **cobalt (ii) chloride**, it would to pink.

**NB/ REAGENT 1MK, CORRECT COLOUR CHANGES 1MK**

(ii) Boil ½ , If it boils at a **constant/fixed** temperature. ½ **REJ 1000 C**

(c) (i) Mg(s) + H2O(g)  MgO(s)  + H2(g)

(ii)It is less dense than air.

**5.**(a) MnO2(s) +4HCl(aq)  MnCl2(aq) + Cl(g) +2H2O(l)

(b)

* It turns red then white{1mks}
* Red because the solution is acidic{1mks}
* White because the **HOCl** bleaches the dye in the litmus{1mks}

(c) sodium chlorate

(d) I) (i) To expel the air that was inside so that its oxygen doesn’t react with chlorine.

(ii) It would absorb both water moisture and un-reacted chlorine.

II) moles of chlorine gas=400024000

= 0.16677moles

2Fe + 3Cl2 2FeCl3 {1mks}

Mole ratio

Cl2 : FeCl3

3 : 2

Moles of product

If 30.1667

2

20.1667/3

=0.11111moles

Mass of product=moles RMM

0.11111162.5

=18.0538g

**6.** (a) It is the spontaneous disentigration of an unstable nuclide to form a stable nuclide.

(b) (i) Step (I) Alpha

Step (ix) Beta

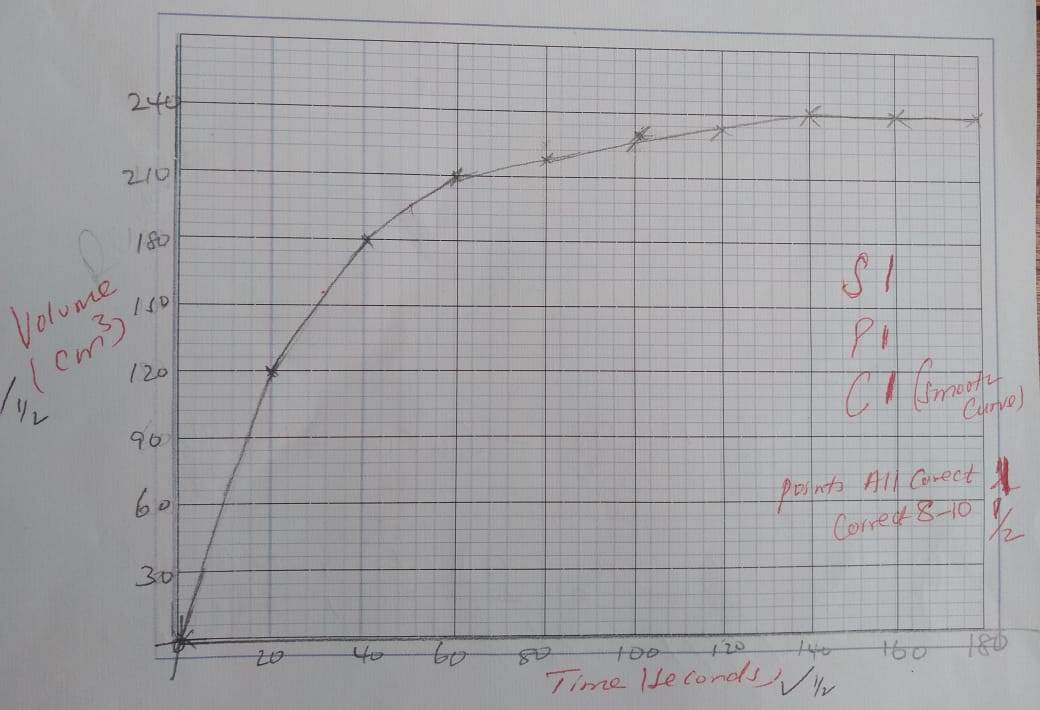
(ii) 90230Th 88226Ra + 24He

(iii) 30/6 = 5

482412 ----- 631.5g

=1.5g

(c).

**7.** (a) 

(b)(i) 240 - value at 50 {1mks} Answer {1mks}

(ii) value to be read from the gragh.

(c) Because 1g of calcium carbonate can only produce 240cm3(1mk)

That is 1/100 = 0.01 (½ )

Moles of CO2

CaCO3 ;CO2

1 : 1

0.010

=240cm3

(d) Tangent at 55th minute (1MK)

Dy/dx {1mks}

* Answer with units {1mks}
* Answer with no units{1/2mks}

1. Use powdered calcium carbonate.

Warm the acid.

**8.** (i) Cu(NO3)2(aq) + Na2CO3(aq) CuCO3(S) +2NaNO3(aq).{1mks}

(ii) A blue precipitate, ½ Insoluble in excess.{ ½ mks}

(iii) Brown copper solid dissolves forming a blue solution.

Brown fumes are seen escaping.

(iv) Cu(aq)+2 +2OH(aq) -Cu(OH)2

Cu(OH)2(S) + 4NH3(aq)[Cu(NH3)4](aq)+2 +2OH-(aq)

V) To clean metals.

Manufacture of nitrogeneous fertilizers

**Any other relevant**