KENYA NATIONAL EXAMINATION COUNCIL
REVISION MOCK EXAMS 2016
TOP NATIONAL SCHOOLS

PRECIOUS BLOOD HIGH SCHOOL

CHEMISTRY

PAPER 2

MARKING SCHEME

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PRECIOUS BLOOD KCSE TRIAL AND PRACTICE EXAM 2016

QUESTION PAPER 2

MARKING SCHEME

1. (a) J;
   (b) D_2Z;
   (c) L or R;
   (d) G; has more energy levels hence outermost one electron loosely held;
   (e) Acidic 3; it's hydrolysed in water forming acidic solution;
   (f) Halogens;
   (g) $\frac{(100 - x)\ 39 + 42x}{100} = 40.2$;

   $3900 - 39x + 42x = 4020$;

   $3x = 120$

   $x = 40$;

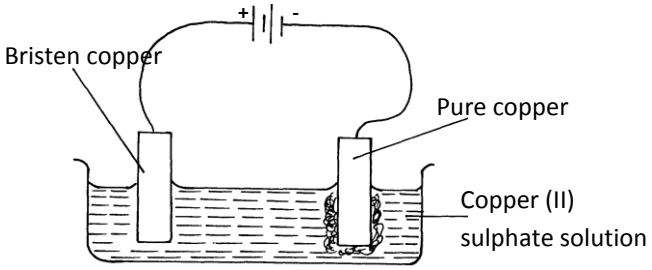
   $100 - x = 60$;

2. (a) (i) Pentanol;
   (ii) 3-Methylbutanoic acid;
   (iii) Ethylpropanoate;

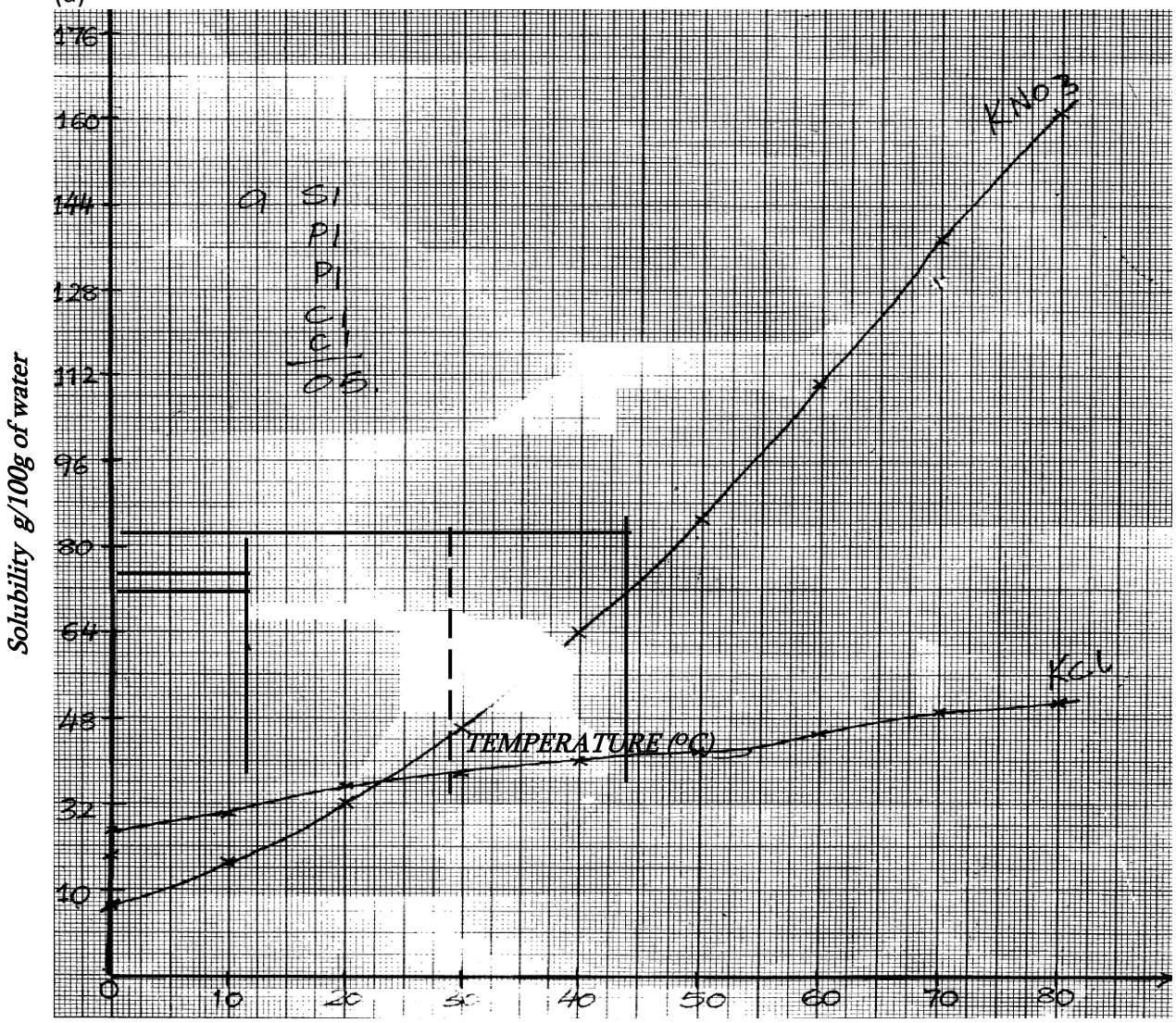
   (b) (i) **B** – Sodium propoxide; **F** – 1,2 dibrommopropane; (accept correct fromular)
   (ii) **C** – Propanoic acid; **E** – Polypropene; (no formular)
   (iii) Catalyst – Nickel/Platinum/Pd;
   Heat – 200^oC// 150 – 200^oC;
   (iv) $C_3H_{8(g)} \longrightarrow CH_{4(g)} + C_2H_{4(g)}$
   (v) Fuel; preparation of hydrogen /methanol/CCl_4 – *any 2 correct 1mark each*
   (vi) Concentrated sulphuric acid / $H_2SO_{4(l)}$;

3. (a) (i)$CUFeS_2$;
   (ii) Copper (I) Sulphide;
   (iii) $3Cu_2S + 4O_2 \longrightarrow 2Cu_{(s)} + 2CU_2O + 3SO_{2(g)}$
   (iv) SiO_2; $FeO_{(l)} + SiO_{2(s)} \longrightarrow FeSiO_3$
   (v) To reduce Copper (I) Oxide

(b)



4. (a)

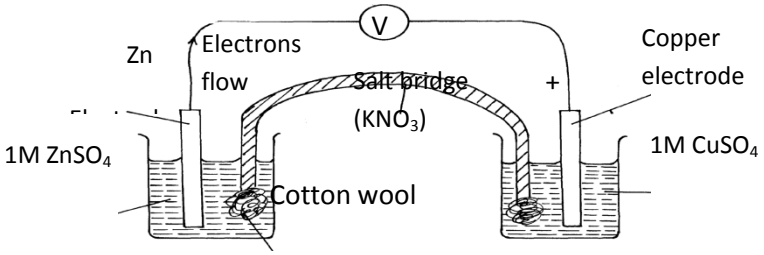


(b) KCl = 25°C ± 1 (1mk)
KNO3 = 23°C ± (1mk)

(c) (i) 10g = 4.0g
100g = 100 x 4 =40g/100g of water √ (1mk)
10
Crystals of KCl appear at 40°C √ (1mk) KNO_3 appear at 26°C

(ii) 100g of water → KCl = 40.0√(½mk) – 31.0 = 9.0g√ (½mk)
10g of water = 0.9g√(½mk) of KCl
100g of water KNO_3 = 40.0 √(½mk)– 21.0 = 19√(½mk)
10g of water = 1.9 g√(½mk) KNO_3

5. (a) (i)



(ii) On the diagram

(b) (i) a $Zn_{(s)}$ ⟶ $Zn^{2+}_{(aq)} + 2e^-$ Zn, electrode

b $Cu^{2+}_{(aq)} + 2e^- \longrightarrow Cu_{(s)}$ Cu, electrode

(c) $E_{RDN} - E_{OX}$

+0.34 - - 0.76 = + 1.10V

(d)

$2H^+_{(aq)} + 2e^- \longrightarrow H_{2(g)}$	$Cu^{2+}_{(aq)} + 2e^- \longrightarrow Cu_{(s)}$
2F = 2400	2F = 64g of Cu
*x*f = 480	0.04F = *x*g
*x*f = $\frac{480 \times 2}{2400}$	*x*g = $\frac{0.04 \times 64}{2}$
= 0.04F	= 1.28g

$Ag^+_{(aq)} + e^- \longrightarrow Ag_{(s)}$

2F = 108 x 2

0.04 = Xg

Xg = $\frac{0.04 \times 108 \times 2}{2}$ = 4.32g

6. (a) (i) Insert a burning splint in the gas jar if it burns with a "pop" sound its hydrogen.

(ii) Green solid;

(iii) $2HCl_{(g)} + Fe_{(s)} \longrightarrow FeCl_2 + H_{2(g)};$

(iv) (a) should be done in a fume chamber/open space; chlorine gas is poisonous

(b) Q = Iron (III) Chloride // $FeCl_3$

(c) $2FeCl_{2(s)} + Cl_{2(g)} \longrightarrow 2FeCl_{3(s)}$

2 1 2

Moles of $FeCl_3$ = $\frac{5.3}{162.5}$ = 0.0326;

Moles of chlorine = ½ x 0.0326 = 0.0163

Volume of chlorine = 0.0163 x 24000

= 391.38cm^3; ***Or***

$\frac{5.3 \times 24000}{162.4 \times 2}$ = 391.38cm^3;

(d) (i) In water HCl is ionic; in methylbenzene it is molecular; HCl ionizes in water in methylbenzene it does not.

(ii) (a) **P** – Hydrogen chloride gas $(HCl)_{(g)}$; **J** – Ammonia gas $(NH_{3(g)})$;

(b) Sublimes;

7. (a) (i) Frasch process;

(ii) Pipe N;

(iii) Heating of water at higher pressure;

(b) (i) Hydrogen;

(ii) Calcium hydroxide formed is slightly soluble in water; hydroxide ion formed are few;

(c) (i) Contains $Cu^{2+}_{(aq)}$; that reacts with soap before lathering can take place;

(ii) Calcium hypochlorite;

(iii) Calcium hydroxide;