# KENYA NATIONAL EXAMINATION COUNCIL
# REVISION MOCK EXAMS 2016
## TOP NATIONAL SCHOOLS

**KENYA HIGH SCHOOL**
**CHEMISTRY**
**PAPER 1**
***MARKING SCHEME***

**SCHOOLS NET KENYA**
Osiligi House, Opposite KCB, Ground Floor
Off Magadi Road, Ongata Rongai | Tel: 0711 88 22 27
E-mail:infosnkenya@gmail.com | Website: www.schoolsnetkenya.com

**KENYA HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016**
**QUESTION PAPER 1**
**MARKING SCHEME**

1. (a) Atoms of the same element with same atomic number but different mass no.s/neutrons
   (b) Total sum of protons and neutrons
   (c) Nuclides with same mass no.s but different atomic no.s
2. (a) Calcium oxide reacts with chlorine to form calcium hypochlorite to for calcium hypochlorite
   (b) Anhydrous $Cacl_2$ / conc. $H_2SO_4$
3. (a) Both ammonia and water are polar molecules and hydrogen bonds are formed.

   (b) Co-ordinate bond

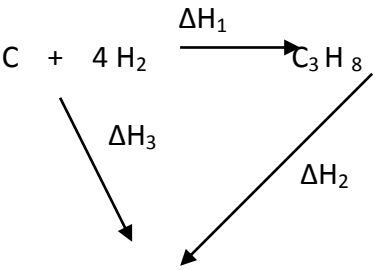
4. (a) (i) Naphalene particles absorbs heat increasing the Kinetic energy increasing the vibrations.

   (ii) Heat absorbed is used to break the bonds holding the solid particles together.

5. a) Enthalpy change when one mole of the compound is formed from its constituents elements in their standard states (stp)

   (b) Molar enthalpy change of formation
   Molar enthalpy change of combustion

   (c)




$\Delta H_1 + \Delta H_2 = \Delta H_3$ (½)

$\Delta H_1 + \Delta H_2 - \Delta H_2 = \Delta H_3 - \Delta H_2$ (½)

$\Delta H_1 = 3\left((-394)+4(-286) - \right) \quad 1202$(½)

=-124Kj Mol-1 (½)

(a) Pipe nearest ground level

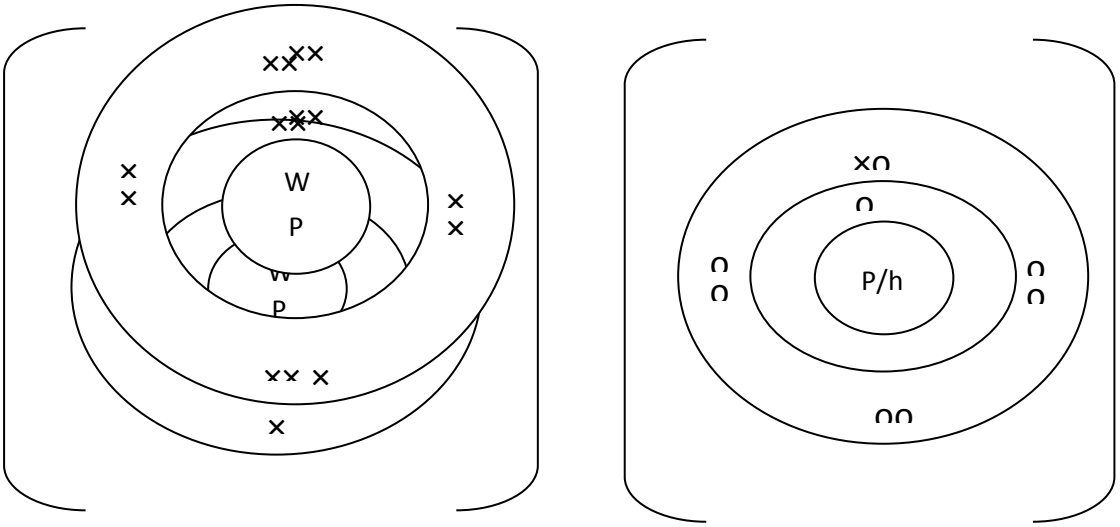
(b) (i) Vanadium (v) oxide/platinum

(iii) **I** yield decreases extra heat decomposes $SO_3$ /forward rxh is exothermic/equilibrium shifts to the left.

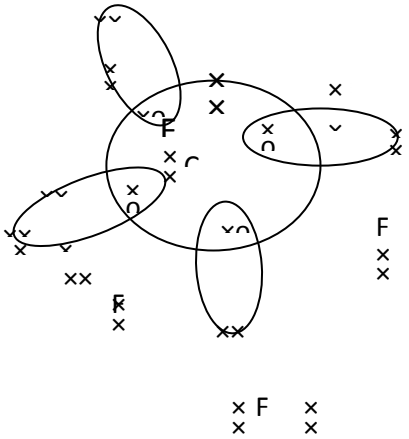
**II** Yields increases since extra oxygen is used

6. In diamond all the bonds are strong covalent bonds while graphite structure of layers that held together by weak vander waals forces that are easily broken

7. (a)




(b)




8. (i) I 1 and III
II. II and IV
(ii) IV. has a double bond

9. (a) Kbr
(b) 60-55 = 5g
© Fractional crystallization

10. (a) - Thistle funnel to touch reagents
- Delivery tube to go through the hole of beehive shelf

(b) Sodium peroxide

11. (i) Bitumen, last to be collected;
(ii) Fractional distillation
(iii) Limited supply of oxygen

12. (a) $H^+_{(aq)} + OH^-_{(aq)} \longrightarrow H_2O_{(l)}$

(b) I $Y_2$ – complete neutralization /end point

II $Y_1$ and $Y_2$ –Neutralization is taking place producing heat.

III $Y_2$ and $Y_3$ reaction has come and products are cooling/cooling releases heat to the surrounding.

13.

| | |
|---|---|
| A black solid is formed;<br>Heat is given out | Chemical |
| Purple vapour condenses on cooler parts of test tube into shiny grey crystals | Physical |
| Solid decomposes to form gas and black solid/blue- green due loss of water | Chemical |

14. (a) A base that dissolves in water to give hydroxide ions.

(b) (i) Very soluble in water, thus it would dissolve in water instead of being collect.

(ii) Less dense than air

15. (a) Conc. Sulphuric acid reject if concentrated missing

(b) $H_2SO_{4\,(l)} + NaNO_{3(s)} \longrightarrow NaHSO_{4(s)} + HNO_{3(g)}$

© Prevent decomposition of nitric acid

17 (a) (i) X-Oxygen

Y-Hydrogen

(b) Water is a weak electrolyte while hydrogen chloride gas in water is a strong electrolyte

Water has no ions but Hcl(aq) has ions

18 (a) K and N; same group/same valence electrons/loose two electrons

19 - copper

- the two electrodes have the same electrode potentials
- (b) A

Has the most negative reduction potential, so its tendency to donate electrons is the highest.

(c) $B_{(s)} \longrightarrow B^{2+}_{(aq)} + 2e$

20 (a) At constant temperature, the volume is inversely proportional to the pressure.

(b) $P_1V_1 = P_2V_2$ (½)

$3 \times 1 = 2 \times V_2$ (½)

$V_2 = \frac{3 \times 2}{2} = 1.5$ (1)

21 W- mixture of sodalime and sodium ethanoate

P- Methane

(b) Substitution

22. (a) Time taken for half the amount to decay

(b) $100 \xrightarrow{t\,½} 50 \xrightarrow{t\,½} 25 \longrightarrow 12.5 \longrightarrow$

3 t½ = 15.6yrs (1)

t½ =5.2 yrs (1)

23 (a) charge that atoms have in molecules or ions

(b) $Cr_2O_7^{2-}$ $2Cr + 7(-2) = -2$

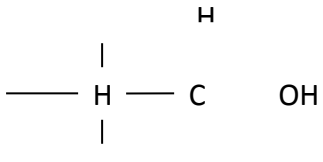
$2Cr = +12$

$Cr = +6$

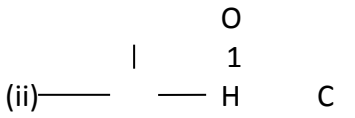
(b) $MnO_4^-$ Mn + -8-8 =-1+8

Mn = +7

24 (a)(i)



(ii)



(b) $HCOOH_{(aq)}$ + $NaOH_{(aq)}$ ⟶ $HCOONa_{(aq)}$ + $H_20$

(c ) Methyl Methanoate

(d) Few drops of concentrated $H_2SO25$. $Ag^+_{(aq)}$ ⟶ Ag(s) + e√

Q = 0.5 x 18 x 60 √ ½

= 540 c √ ½

if ⟶ 108g

96500c ⟶ $\frac{108}{96500}$

√ ½

540c ⟶ $\frac{108}{96500}$ x 540

= 0.6044g