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

**MOI GIRLS – NAIROBI HIGH SCHOOL**

**CHEMISTRY**

**PAPER 1**

***MARKING SCHEME***

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## MOI GIRLS – NAIROBI KCSE TRIAL AND PRACTICE EXAM 2016

## QUESTION PAPER 1

## MARKING SCHEME

1. (a) Metallic bond √ (1mk)
   (b) Ionic bond √(1mk)
2. (a) (i) $CaCO_3$√ (1mk)
   (ii) CaO√ (1mk)
   (b) Used to detect the presence of Carbon (iv)Oxide gas
3. Potassium does not react with paraffin but react with water while phosphorous react with paraffin but does not react with water
4. (a) Because Sulphur is non-polar and water does not dissolve non-polar substances
   (b) Add water to the mixture and stir then filter and evaporate the filtrate
5.

| Effect on equilibrium | explanation |
|---|---|
| (a) shift to the right √ ½ | There are few number of moles of gas molecules on the right than on the left hand side √ ½ mk |
| (b) Shift to the left √ ½ | Heat is absorbed or reaction is endothermic in the backward direction √ mk |

6. Alkaline earth metals loses two electrons while alkali metal lose one electron.
7. (a) It state that the volume of a fixed mass of a gas is directly proportional to the absolute temperature at constant pressure √ 1
   (b) P1V1=P2V2

   $\frac{740 \times 200}{770} = \frac{770 \times V_2}{770}$

   V2=192.2$cm^3$
8. (a) black mass will be seen √1
   (b) Turn from blue to white √1
   (c) Dehydration √1
9. (a) $\frac{Rx}{Ry} = \sqrt{\frac{dy}{dx}}$

   $\sqrt{\frac{Rx}{Dx} = \frac{290}{1.98}}$

   $\frac{Rx}{Ry} = 1.2$

   Rx=1.2y

   X diffuse 1.2 time faster than y

   (b) $\sqrt{\frac{dy}{Dx}} = \frac{\sqrt{my}}{\sqrt{mx}} \sqrt{\frac{2.90}{1.98}} \sqrt{= \frac{64}{mx}}$

   $(1.2)^2 = \left(\sqrt{\frac{64}{mx}}\right)$

   $1.46 = \frac{64}{Mx}$

$\frac{1.46Mx}{1.46} = \frac{64}{1.46}$

$Mx = 44$

10 $Hx\ KOH \longrightarrow Kx + H_2O$

Mole ration 1:1

No of moles of KOH= $\frac{0.1 \times 25}{1000}$

Since mole ratio is 1:1

Number of moles $15cm^3$ of Hxb is 0.0025

Molarity = $\frac{1000x0.0025}{15}$ = 0.167M

If $2.5g = 250cm^3$

$? = 1000$

$\frac{2.5 \times 1000\sqrt{1}}{250}$

=10g/litre

Molarity = $\frac{g/litre}{R.M.M}$ = 0.167

$= \frac{10g/h}{R.M.M}$

0.167RMM=10g/h

R.M.M=$\frac{10g/h}{0.167}$

=60

11. Protons √ ½ -Nucleus √ ½

Electrons √ ½ -energy levels √ ½

Neutrons –nucleus √ ½

12. (i)

(b) (i) Double covalent bond √ 1

(ii) Co-ordinant bond √1

13.

| | |
|---|---|
| Mass 5.28 | 2.16 |
| R.F.M 44 | 18√ |
| No. of moles | |
| $\frac{5.28}{44}$ | $\frac{2.16}{18}$ |
| =0.12 | =0.12 |
| Mole ratio 1 | 1 |

| C(CO2) | H(H2O) |
|---|---|
| $\frac{12}{44} \times 5.28$ | $\frac{2}{18} \times 2.16 = 0.24$ |
| No. of moles $\frac{1.44}{12}$ | $\frac{0.24}{1}$ |
| Mole ratio = $\frac{0.12}{0.12}$ | $\frac{0.24}{0.12}$ |
| 1 | 2 |

CH2 √ ½

$(CH2)_n=84$
14n=84
n=6
$6(CH2)\ C_6H_{12}$ √ ½

14. (i) N √ 1
(ii) M √ 1
(iii) O √1

15 (i)Hydrogen√ 1
(b)(i) Used in balons√1
(ii) Used in the manufacture of ammonia gas √ (any two 2mks)
(iii) Used in the manufacturer of hydrochloric acid

16. (i) Potassium √1
(ii) Hydrogen √1
(iii) Pink √ 1

17. (i) $2CO(g) + O2(g) \longrightarrow 2CO_{2(g)}$ √1
(ii) $CO2_{(g)} + C_{(s)} \longrightarrow 2CO_{(g)}$ √1

(iii) $C(s) + O2(g) \longrightarrow CO2(g)$

18 (a) 75 -30=45g √ 1
45g of water = 30g of salt
100g of water =?

$$\frac{100 \times 30}{45}$$

=66.7g

$$\frac{30}{75} \times 100$$

=400%

19. (i) Waste soap √1
(ii) Form coating in kettles; √ Pipes and boilers (any two 2mks)
(iv) Bursting of hot pipes

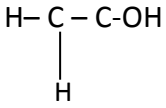
20. (a) Oxidation is the loss of electrons while reduction is gain electrons
(b) *x*x2+(-2)=-2

21. (a) (i) Zinc sulphate √1 or any other solution with zinc ions
(ii) Lead electrode √1

22. (a) Copper pyrites √ ½ -$CuFeS_2$ √ ½ (any one 1mk)
Cuprite – $Cu_2O_2$
(b) Reaction at the cathode
1M of copper requires 2 moles of electrons
1 mole of electrons ⟶ 96500c
2 moles -2x96500
63.5 ⟶ 193,000
1x20x60=?

$$\frac{1200 \times 193{,}0000}{63.5}$$

23. (a) Ethanoic acid form hydrogen bond which are stronger than those in ethanol√1
(b)



24. (a) RCOO-Na + -soaps√ ½
RCH2OSO3 –Na+ -soapless detergent √ ½
(b) $RCH_2OSO_3$-Na+√1
Because it contain long chains of alkylbenzene and sulphanate which is difficult to be broken by bacteria action √1

25.(a)

| Chemical reaction | Nuclear reaction |
|---|---|
| It takes place on the outer √ ½ | Take place within the nucleus √ ½ |
| Heat energy released is less √ ½ | Heat energy released is large √ |
| Involves electrons √ ½ | Involves neutrons and electrons |
| Affected by environmental factors such as temperature and pressure | No affected by the environmental factors (any three 3mks) |

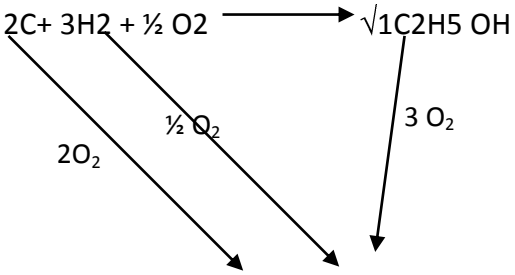
(b) A-Gamma rays
B-Beta rays
C-Alpha rays

26. $C_3H_{3(g)} + 5O_{2(g)} \longrightarrow 3CO_{2(g)} - 4H_2O$

| | | | |
|---|---|---|---|
| 1 mol | 5mol | 3 mol | 4mol |
| 1 vol | 5 vol | 3 vol | 4 mol |
| $10cm^3$ | $50cm^3$ | $30cm^3$ | $40cm^3$ |

Propane is $10cm^3$
Oxygen is $70cm^3$
Residual oxygen is $70-50=20cm^3$

27. (a)




CO2 + H2O √1

(b) $\Delta H\theta_F\ C_2H_5OH = 2\Delta HC(C) + 3\ \Delta HC_{(H)}\ (g) - \Delta H^{\theta}C(C2H5OH)$
2x(-393)+3x(-286)-(-1368)
$=-276KjMol^{-1}$√ ½

28. Empirical formula show the simplest whole number ration in which atoms combine to for a compound while molecular formula shows actual number of each kind of atoms present in a molecule of a compound √1