233/3
CHEMISTRY
PAPER 3
FORM 4

Kenya Certificate of Secondary Education

END OF TERM II EXAMINATION
MARKING SCHEME

1.Procedure Table 1 (5mks)

a) Complete table - 1mk
Comple

te table with 3 titrations done – 1mk
Incomplete table with 2 titrations done ½ mk

Penalties
-wrong subtraction
- Inverted table
-Burette readings beyond 50cm^3 unless explained
-Unrealistic titre values eg less 1cm^3 or in hundrends
Pennalise ½ mk to Maximum ½ mk

b)Use of decimals – (Tied to first and second rons only) 1mk
-Accept one or two decimals used consistency otherwise penalize fully (A ward zero marks)
-Accept inconsistency of use of zero's on the initial burette readings eg 0, 0.0, 0.00.
-If two decimals, use the second digit as 0. Or 5 otherwise penalize fully.
c)Accuracy – 1mk
Compare the candidates titre values with the school value and award as follows.

i)If at least one is within t 0.1 of S.V – 1mk
ii) If none but at least one within t 0.2 of S.V – ½ mk
iii)If none within t 0.2 of S.V award 0 mk.
d)Principle of averaging - 1mk
i)3 Titrations done, 2 are consistent – 1mk
ii) If only 2 titrations done, are consistent – 1mk
e)Final Accuracy - 1mk
- tied to correct average of titre - 1mk
-Compare the candidate correct average titre with S.V . award as follows.
i)If within t 0.10cm^3 of S.V - 1mk
ii) If not t 0.10 but within t 0.20 of S.V ½ mk
iii) If not within T 0.20 cm^3 of S.V 0omk
b) $2NaOH = H - A \longrightarrow Na_2A + 2H_2O$
2 moles 1 mole NaOH23 + 16 + 1 = 40
Moles of NAoh Used = an

Moles of dibasic acid in 25cm^3 of solution M = ½ x moles of NaOH Above

c) (i) 250cm^3 of M= ans (b) mole ratio 1: 2

250cm^3 of M ½ X 0.0025 = ½ MK

II) Answer in $\frac{(\quad CI) \times 1000}{\text{Answer (a) (average titre),}}$ ½

iii) $\frac{6.3}{\text{answer C(ii) ½}} = \frac{}{\text{ans ½}}$

iv) r.f.m = 2 + 88 + 18n = ans C(iii)

18n = ans

Sample result

F.B.R	18.9	18.8	18.7
T.B.R	0.0	0.0	0.0
Vol. of soln B used	18.9	18.8	18.7

Procedure ii – table II

aI) Complete table with 10 readings (3mks)

ii)Incomplete table with 8 or 9 readings (2mks)

iii) Incomplete table with 5 or 6 readings (1mk

iv)Less than 2 readings (0 –mk)

Penalise ½ mk for incorrect 1/t or value rounded to less than 3 d.p. unless exact (maximum penaly 1mk)

b)Use of decimal (½ mk)

- should be whole member or 2 d.p consistent otherwise penalize fully.

c) Accuracy – 1mk

Compare the first record at 40° C of S.V to candidates readings.

H + 2° C award 1mk otherwise penalize fully

d) Trend - ½ mk

-Time progression should be consistent or continuous drop from 40° to 80°

a)Graph - 3mks as shown

i) Labelling of axes (½ mk)

ii) Scale (½ mk)

-Area covered by the graph (plots) should be at least half of the grid provided.

-scale interval must be consistent on each axis.

iii) Plotting – (1mk)

- 3 – 4 [points correctly plotted award - 1mk
- 2 points are correctly plotted ½ mk
- Mark all points plots with a tick or cross

iv) Line/ shape of graph- (1mk)

- Accept a correct line passing through at least 2 correct5 ly- plotted point and origin for . 1mk

b) Calculation for time at 65° C from graph time = Reciprocal of 1/t . 1mk
c) The rate of reaction increases as the temperature increases due to K..e increases and collisions. 1

Question 2.

Observations	Inferences
a)Solid melts ½ Red litmus paper ½ turns blue. Blue litmus paper turns red. Colourless liquid seen in cooler part of test tube.	NH_4 + ions ½ present / NH_3 gas evolved. -Acidic ½ gas evolved hydrarted salt.
b) Solid Q dissolves to form i) Colourless solution ½	Ionic compound / soluble salt /polar ½
ii) White ppt is formed	$SO^{2-}_{3,}$ SO^{2-}_{3} CL^{-} $S0^{2-}$ present
iii) White ppt formed insoluble in acid	SO_4^{2-} Pb^{2+} ,Al^{3+} ions
iv) White ppt formed 1 dissolves in excess to form colourless soln	Zn^{2+} Pb^{2+} ,AL^{3+} ions present
v)White ppt formed Insoluble in excess ½ mk	Pb^{2+} , Al^{3+} ions present
vi) white ppt formed ½ dissolved on warming	$Pb2^{+}$ ions present ½
3.a) Soofty flame burns with smoky flame ½	
b) Dissolve to form a colourless generous solution	Polar organic compound ½
c.i) No observable change 1mk)	R- OH absent
ii) Effectivescene / bubbles seen	R –COOH or
iii) Purple acidified $KMnO_4$ Decolourised (Turns colourless)	

END