IKUTHA SUB-COUNTY KCSE REVISION MOCK EXAMS 2015

233/3
CHEMISTRY
PRACTICALS
PAPER 3
TIME: 2¼ HOURS

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

NAME _____ INDEX NO. _____

SCHOOL _____ SIGNATURE _____

DATE _____

233/3
CHEMISTRY
PRACTICALS
PAPER 3
TIME: 2¼ HOURS

IKUTHA SUB-COUNTY FORM FOUR JOINT EXAMINATION, 2015

Kenya Certificate of Secondary Education (K.C.S.E)

233/3
CHEMISTRY
PRACTICALS
PAPER 3
TIME: 2¼ HOURS

INSTRUCTIONS TO CANDIDATES

(a) Write your name, school and index number in the spaces provided above.
(b) Sign and write the date of the examination in the spaces provided above.
(c) Read the questions carefully
(d) Follow the instruction for each procedure carefully
(e) You are not allowed to start working with the apparatus for the first 15 minutes of 2 ¼ hrs allowed for this paper. This time will enable you read the question paper and make sure you have all chemicals and apparatus that you may need.
(f) All working must be clearly shown.
(g) Mathematical tables and electronic calculators may be used.

FOR EXAMINERS' USE ONLY:

QUESTION	MAXIMUM SCORE	CANDIDATES SCORE
1	21	
2	12	
3	07	
TOTAL SCORES	40	

This paper consists of 8 printed pages.
Candidates should check carefully to ascertain that all the pages are printed as indicated and no questions are missing.

 Turn Over

1. You are provided with:

- Solid V
- 2.0M hydrochloric acid, solution B
- 0.1M sodium hydroxide, solution C

You are required to determine the enthalpy change ΔH, for the reaction between solid V and one mole of hydrochloric acid.

Procedure I

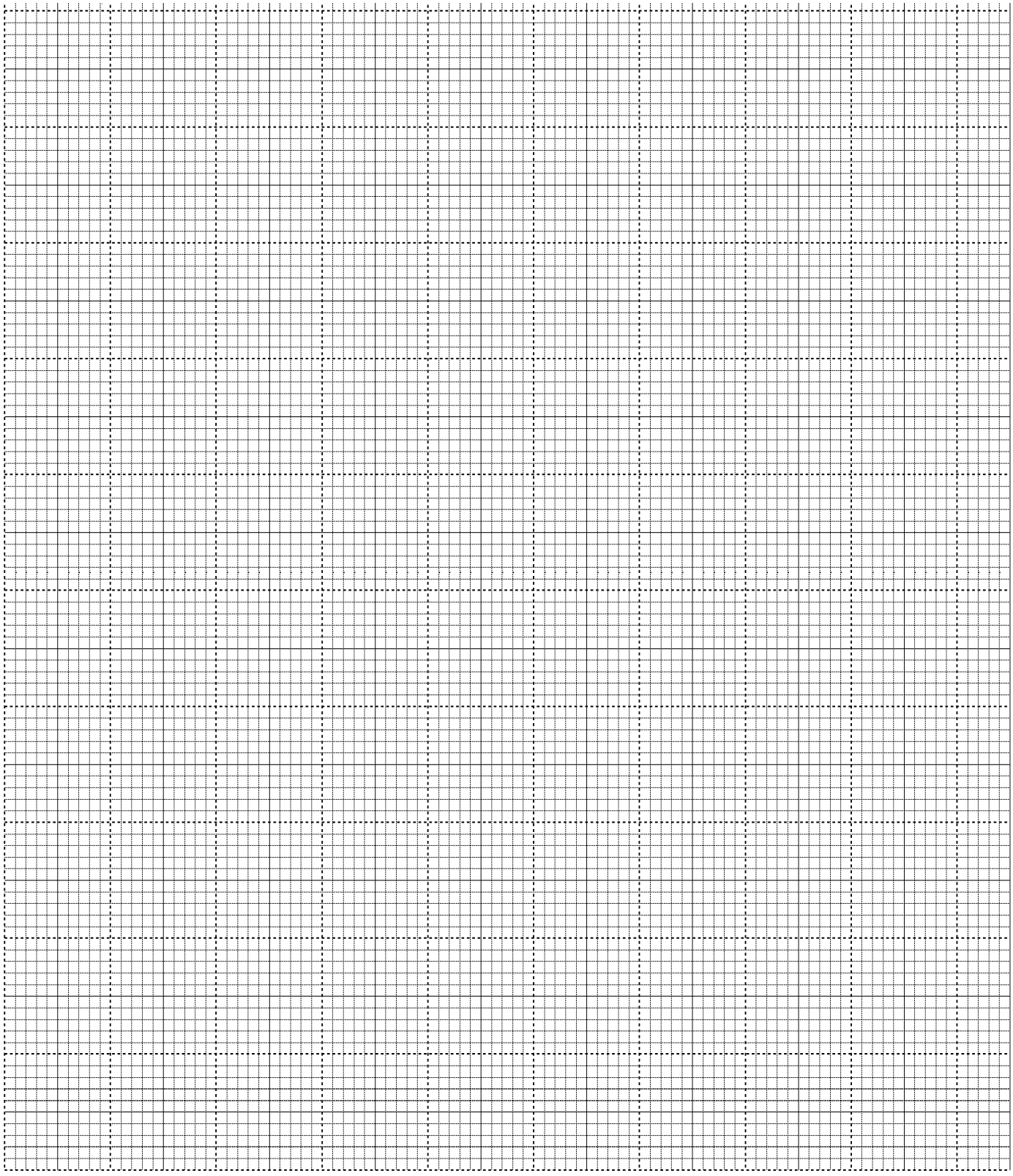
Using a burette, place 20.0cm^3 of 2.0M hydrochloric acid, solution B in a 100ml beaker. Measure the temperature of the solution after every half – minute and record the values in table 1. At exactly 2½ minutes, add all of solid V to the acid. Stir the mixture gently with a thermometer of mixture after every half minute and record the values in table I (Retain the mixture for use in procedure II)

Table 1

Time (min)	0	1	1½	2	2½	3	3½	4	4½	5
Temperature										

(4 marks)

a) On the grid provided plot a graph of temperature (vertical axis) against time. (3 marks)



b) From the graph determine the change in temperature ΔT. (1 mark)

_____

_____

_____

_____

c) Calculate the heat change for the reaction (Assume that the specific heat capacity of the mixture is 4.2j/g/K and the density of the mixture is 1g/cm^3) (1 mark)

Procedure II

Rinse the burette thoroughly and fill it with 0.1M sodium hydroxide, solution C. Transfer all the contents of the 100ml beaker used in procedure I into a 250ml volumetric flask. Add distilled water to make up to the mark. Label this solution V. Using a pipette and a pipette filler, pipette 25.0cm^3 of solution V into a conical flask. Add 2 – 3 drops of phenolphthalein indicator and titrate with solution C. Record your results in table 2 below. Repeat titration two more times and complete table 2.

Table 2

	I	II	III
Final burette reading			
Initial burette reading			
Volume of solution C used (cm^3)			

(4 marks)

Calculate the;

a) Average volume of sodium hydroxide used. (1 mark)

b) The number of moles of;

I. Sodium hydroxide used. (1 mark)

II) Hydrochloric acid in $25cm^3$ of solution V. (1 mark)

III) Hydrochloric acid in $250cm^3$ Solution V. (1 mark)

IV) Hydrochloric acid in 20.0 cm^3 of solution V. (1 mark)

V) Hydrochloric acid that reacted with solid V. (1 mark)

c) Calculate the enthalpy of reaction between solid V and one mole of hydrochloric acid. (2 marks)

2. You are provided with mixture N. You are required to:-

i) Carry out tests on mixture N

ii) Identify any gases produced if any

iii) Record your observations and inferences accordingly.

Procedure

i) Place a spatulaful of mixture N in a test tube.

ii) Add $8cm^3$ of distilled water and shake well

iii) Filter and retain the residue

a) Divide the filtrate into four parts.

Observations	Inferences
(1 mark)	(1 mark)

b) Add sodium hydroxide to the first portion drop wise while observing till in excess.

Observations	Inferences
(1 mark)	(1 mark)

c) Add ammonia solution to the second portion of the filtrate drop wise, until in excess.

Observations	Inferences
(1 mark)	(1 mark)

d) Add 1cm^3 dilute hydrochloric acid to the third portion.

Observations	Inferences
(1 mark)	(1 mark)

e) Add a few drops of potassium iodide solution to the fourth portion.

Observations	Inferences
(1 mark)	(1 mark)

f) Remove the residue from the filter paper and place it in a test tube, add 5cm^3 of dilute nitric (V) acid.

Observations	Inferences
(1 mark)	(1 mark)

3. You are provided with organic compound solid G. Carry out the following tests.

a) Place all of solid G in a boiling tube. Add about $20cm^3$ of distilled water and shake well. Divide the mixture into 3 separate test tubes.

Observations	Inferences
(½ mark)	(½ mark)

b) To the first portion of the mixture add a spatula full of sodium carbonate solid.

Observations	Inferences
(1 mark)	(1 mark)

c) To the second portion of the mixture, add a few drops of universal indicator and test the pH

Observations	Inferences
(1 mark)	(1 mark)

d) To the third portion of the mixture, add $2cm^3$ of ethanol followed by 2 drops of concentrated sulphuric (VI) acid

Observations	Inferences
(1 mark)	(1 mark)