Name. SCHEME	Adm NoIndeNoClass
	Signature
	Date
233/3	
CHEMISTRY	
PAPER 3	
(PRACTICAL)	
March, 2018	
2 ¼ hours	

MOKASA EXAMINATION 2018

CHEMISTRY PRACTICAL 233/3

(Kenya Certificate of Secondary Education)

Instructions

- ✓ Write your name, admission number and class in the spaces provided above.
- ✓ *Sign and write the date of examination in the spaces provided above.*
- ✓ Spend the first 15 minutes of the 2 ¼ hours to read through the paper and make sure you have all the apparatus and chemicals required.
- ✓ *Answer all the questions in the spaces provided in the question paper.*
- ✓ Electronic calculators may be used.
- ✓ All working **must** be clearly shown where necessary.
- ✓ This paper consists of 7 printed pages. Confirm this and that no questions are missing.

For Examiner's Use Only

Question	Maximum Score	Candidate's score
1	20	
2	14	
3 ,	06	•
Total	40	

- 1. You are provided with; Solid A in a boiling tube
 - Solution B, sodium hydroxide
 - 0.1M monobasic acid, solution C.

You are required to;

- Determine molarity of solution B, i.
- Determine the solubility of solid A ii.

Procedure I

- Using a measuring cylinder, place 50cm³ of solution B into a clean 250ml beaker. (i) +0.2 Add 100cm³ of distilled water to the solution and label it as solution D.
- Fill the burette with solution C (ii)
- Using a pipette filler, place 25cm³ of solution D into a 250ml conical flask. Add two (iii) drops of phenolphthalein indicator.
- Titrate solution D with solution C and record your results in table 1 below (iv)
- Repeat the titration two more times and complete table 1. (v)

Table 1

(4mks) PP 1 III II 19.0 18.8 18.9 Final burette reading 0.0 0.0 0.0 Initial burette reading 19.0 Volume of solution C used (cm³) 18.8 18.9

CT 1

ACI

(a) Calculate the average volume of solution C used.	(Imks)	(4mks)	15
$\frac{18.9 + 18.8 + 19.0}{3} = 18.9$	cm³ (Ans(1	a) Alleast 2	-9*
(b) Calculate moles of solution C used in the experiment.		(1mk)	
(c) Calculate moles of solution D used.		(1mk)	
Moles of D = Ans (1b)		(1mk)	
(d) Calculate molarity of solution D. Ans. (6) X 1000 = A	ns (1d)	Malaray	.CN
		or moles per	r Rg
		Atleast 4d	P
*			

(e) Calculate molarity of solution B. Molarity — Ans (d) X. 50 cm	150 Cm ³	Dilution ? C,V, = C	emks)
Procedure II (i) Using measuring cylinder, add 20cm³ (tube. Using a glass rod, stir the mixture) (ii) Filter the mixture obtained into 250ml distilled water. Label the filtrate as sole (iii) Clean the burette and fill it with solution (iv) Using a pipette filler, place 25cm³ of two drops of phenolphthalein indicate (v) Titrate solution D with solution A and (vi) Repeat the titration two more times as	of distilled water to e thoroughly for above volumetric flask and lution A. Ison A. Isolution D into 250 or. In the cord your results of the cord your results of the cord your results.	solid A in the boin out three minutes. In the manner of th	ling ck with
Table 2			(HMKS
	Ť	II	III
	20.0	19.9	20-1
Final burette reading		0.0	0.0
Initial burette reading	0.0	19-9	20-1
Volume of solution A used (cm³) (a) Calculate the average volume of 20.0 + 19.9 + 2	f solution A used. $0: 1$ $= 20$		(1mk) (4mks)
the number of mo	s of solution A used of solution D for con = Ans	given that 2 mole mplete neutralizates (2C.) 250cm ³	ion. (1mk)
250CM	x Ans (2)	ne (2a)	3.

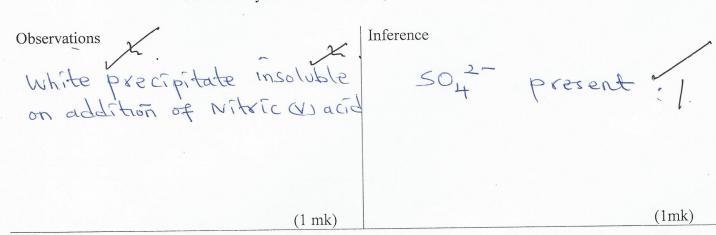
formed is 1 g/cm² and the RFM of A = 126. Mass of the 13 fcm x 20cm = 20 s Selverities = 100 x 4.5 cm = 22.5 g. long of the 2. You are provided with solid E. carry out the tests below. Write your observations and inferences in the spaces provided. (a) Place all solid E into a boiling tube and add 10cm² of distilled water. Shake the boiling tube and filter into a clean test, keep the residue for test (b). Divide the filtrate into three portions. Observations Solid dissolves partially to form a galouxless filtrate and white residue (Imk) Inferences Mixture of soluble and insoluble and insol	(e) Determine the solubility of solid A	given that the density of the solution		
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i. To the first portion, add 2M NaOH drop wise until in excess. Observations X. Inferences White precipitate soluble in Pb2+ A13+ Zn2+ present excess Three mentioned—Inventory	form a solourless filtrate and	X.		
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Observations X. White precipitate soluble in Pb2+ A13+ Zn2+ present excess Three mentioned - Inventor	To the first portion add 2M	NoOII draw wise patilin evenes		
Three mentioned - low	1. To the first portion, and 21vi	TNaOTT drop wise until in excess.		
Three mentioned - low	Observations χ .	Inferences		
Three mentioned - low	white precinitate soluble in	DI 2+ A13+ 72+		
Three mentioned - low		16, 11, 2n present		
Two II 6m	5×657			
Two II 6m				
Two II 6m		Three mentioned - low		
(1mk) One 11 (1mk)		Two II & mk		
i i i i i i i i i i i i i i i i i i i	(1mk)	ADS (1mk)		

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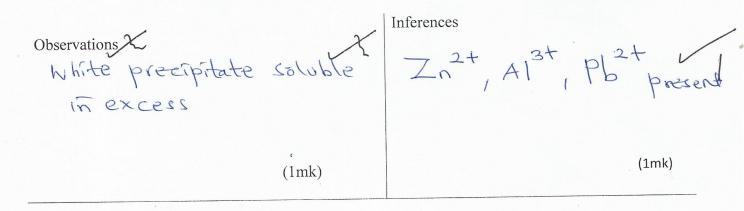
ii. To the second portion, add 2M ammonia solution drop wise until in excess.

Observations	Inferences	
White precipitate soluble	Zn2t	present.
(1 mk)		(1mk)

iii. To the third portion, add three drops of barium nitrate solution followed by 2cm³ of 2M HNO₃.



- (b) Place the residue into a clean test-tube. Add about 5cm³ of 2 M HNO₃ and shake until all the solid dissolves. Divide the solution into three portions.
 - i. To the first portion, add 2M NaOH drop wise until in excess.



ii. To the second portion, add three dr	rops of sodium sulphate solution.
Observations	Inferences
White precipitate 1	Pb2+ present !
(1mk)	(1mk)
iii. To the third portion, add three drop	os of potassium iodide solution.
Observations	Inferences
Yellow precipitate	Pb2+ present
Relect: Tellow Solution (1mk)	(1mk)
3. You are provided with solid F. Carry out the tinferences in the spaces provided. (a) Burn half spatula endful of solid F in anoral Observations Solid melts and burns with a yellow sooty smoky flame (1mk)	Inferences
4	

- (b) Transfer the remaining solid F into a clean boiling tube and add about 5cm³ of distilled water. Shake until all the solid dissolves. Divide the solution into two portions.
 - i. To the first portion add 3 drops of acidified potassium Manganate (VII) solution.

Observations X. Purple acidified KMnO4 is decolourised theres to Colourless	Inferences	-CEC- 0
(1mk)		(1mk)

ii. Test the pH of the second portion using a universal indicator paper.

Observations

PH 4 5 6

Weakly acidic

(1mk)