MATIGO EXAMINATIONS BOARD
UGANDA CERTIFICATE OF LOWER SECONDARY EDUCATION
END OF YEAR ASSESSMENT 2022
SENIOR ONE
CHEMISTRY: THEORY
Time allowed: 2 hour 15 minutes

Please write clearly in block capitals

Index Number: | | | | | | | | | | / | |

Name:

Signature:

Materials

For this paper you must have:

- ✓ a ruler
- ✓ a scientific calculator

Instructions:

- ✓ Use black ink or black ball-point pen.
- ✓ Fill in the boxes at the top of this page.
- ✓ Answer all questions in the space provided in section A.
- ✓ Use separate answer sheets for section B
- ✓ In all calculations, show clearly how you work out your answer.

Information

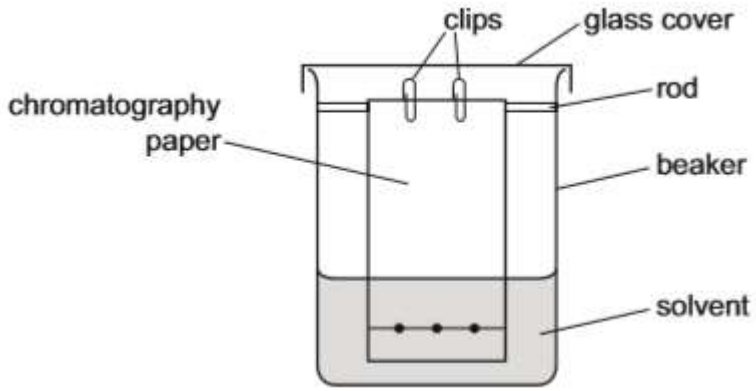
- ✓ There are 80 marks available on this paper.
- ✓ The marks for questions are shown in brackets.
- ✓ You are reminded of the need for good English and clear presentation in your answers

For Examiner's Use	
Question	Mark
1 - 10	
11	
12	
13	
14	
TOTAL	

SECTION A

Attempt all questions

1. A student investigated the colours present in three hair dyes, P, Q and R, using chromatography. P, Q and R are insoluble in water. The student suggested setting up the apparatus for the experiment as shown.



(a) Why is a lid necessary on top of the beaker?

.....(01 marks)

(b) (i) Identify one mistake in the student's diagram.

.....(01 mark)

(ii) Suggest why this mistake would stop the experiment working.

.....
..

.....(01 marks)

(c) Name a suitable solvent that could be used in this experiment.

.....(01 mark)

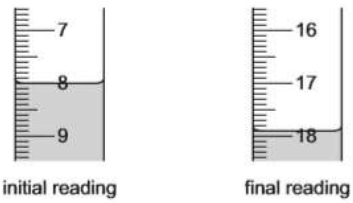
2. A student investigated the temperature changes when two different metals, zinc and magnesium, reacted with aqueous copper(II) sulfate.

(a) Use the thermometer diagrams to record the temperatures in the table

(04 marks)

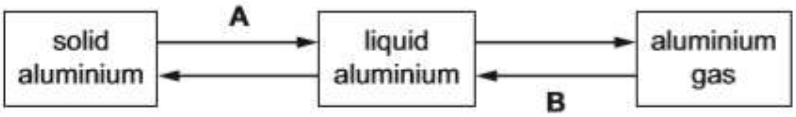
time / s	0	30	60	90	120	150	180	210
thermometer diagram								
temperature of mixture / °C								

3. Use the burette diagrams to complete the table below (04 marks)



	Experiment 1
final burette reading / cm^3	
initial burette reading / cm^3	
volume of solution **A** added / cm^3	

4. (a) Which word means the opposite of: (04 marks)
   (i) Boiling? ……
   (ii) Melting? ……
   (b) Which one of these has a lower freezing point
   (i) Oxygen or ethanol? ……
   (c) Which has a higher boiling point,
   (i) Oxygen or ethanol? ……
5. Describe how you could improve your home to make it cooler in dry season and warmer in wet season. Give reasons for your suggestions. (04 marks)
   ……
   ……
   ……
   ……
   ……
   ……
   ……
6. This question is about aluminium. (a) The changes of state of aluminium are shown.



Name the changes of state represented by A and B. (02 marks)
A.....

B.....

(b)Use the kinetic particle model to describe the differences between solid aluminium and liquid aluminium in terms of:

(i) the arrangement of the particles (02 marks)

.....

.....

7. (a) What are compounds? (01 mark)

.....

.....

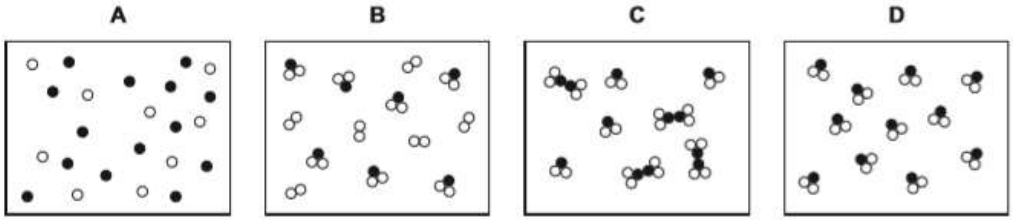
.....

(b) Give two examples of compounds (02 marks)

.....

.....

(c) Which diagram represents a mixture of compounds? (put a ring around one of the letters) (04 marks)

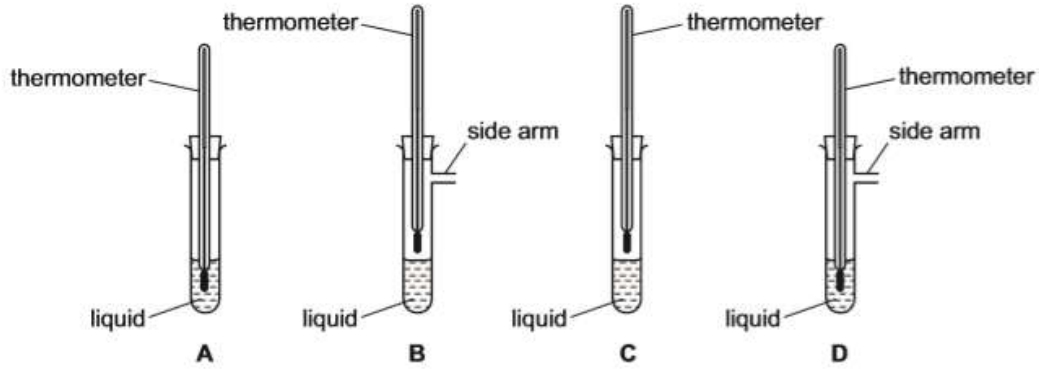


8. (a) Complete the following sentence: Matter is something that takes up ……and has ……..
(b) Identify two substances that sublime.

.....

.....

9. The diagrams show four sets of apparatus, A, B, C and D



(a) (i) Which set of apparatus would be most suitable to determine the boiling point of a liquid? (01 mark)

.....

(ii) Indicate with an arrow on this diagram where heat should be applied. (01 marks)

(b) What would be the effect if the liquid in A was heated strongly? Explain your answer. (02 marks)

Effect

.....

……

Explanation .....

.....

……

.....

……

10. (a) State a use for each of the following gases. (04 marks)

(i) chlorine

……

(ii) argon

……

(iii) Nitrogen

……

(iv) oxygen

……

SECTION B

Attempt only two questions

11. (a) Draw a table with two columns labelled physical change and chemical change. Write down each of the following changes in the correct column: water boiling; a car rusting; petrol burning; sugar dissolving in tea; food being digested; bleach cleaning a dirty cloth; beer fermenting; ice cream melting; wind blowing; milk turning sour; seawater evaporating. (10 marks)

(b) Substances can undergo two kinds of change, physical and chemical. describe four observations that will tell you that a substance has changed chemically. (10 marks)

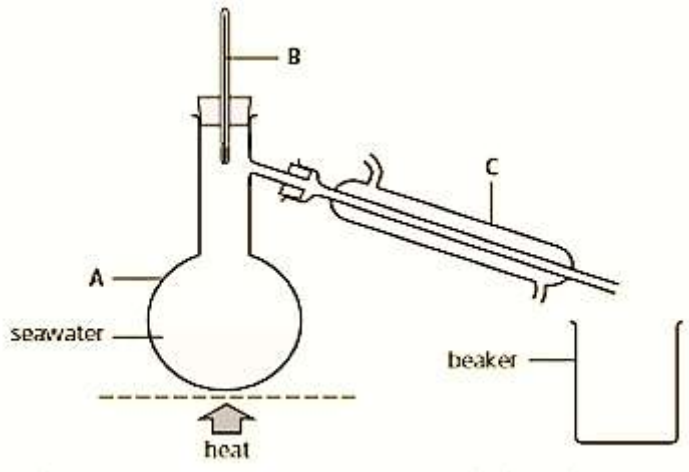
12. (a)Describe how you would crystallize sodium chloride from its aqueous solution. (04 marks)

(b)(i)How would you separate salt and sand? (04 marks)

(i)Mention any special safety precaution you would take. (02 marks)

(d)Think and give a way to get clean sand from a mixture of sand and little bits of iron wire. (10 marks)

13.



(a) i) What is the maximum temperature recorded on the thermometer, during the distillation? ii) How does this compare to the boiling point of the seawater?

(b) In which piece of apparatus does evaporation take place? Give its name.

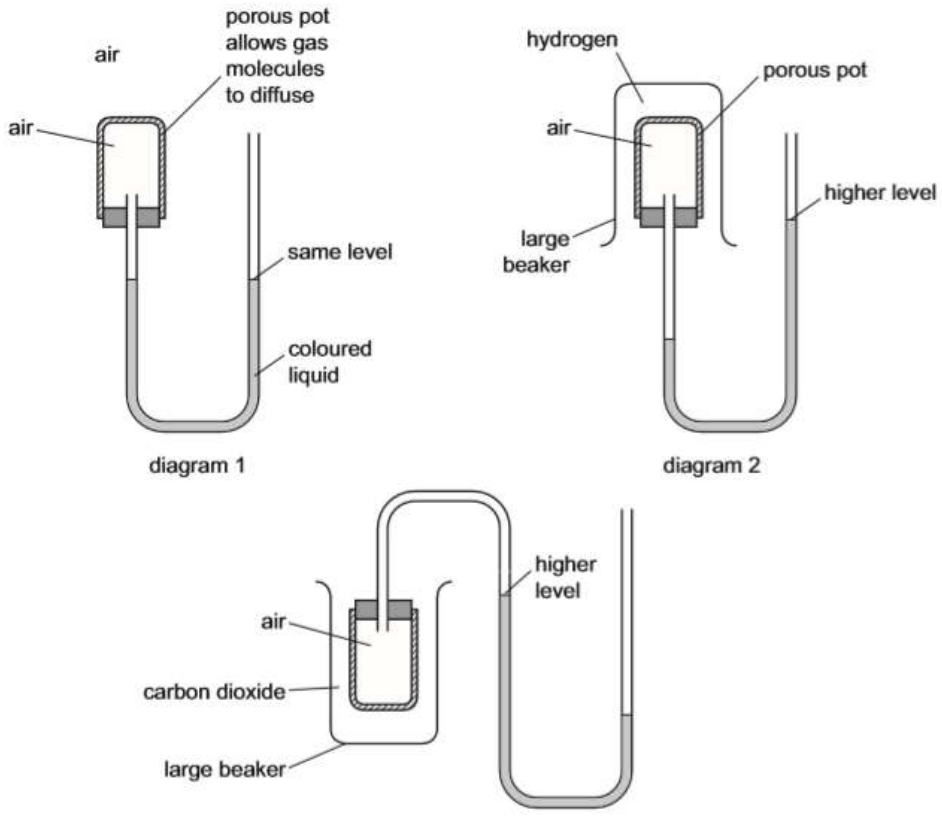
(c) (i) Which is the condenser: A or B or C?

(ii) Where does the supply of cold water enter?

(d) Distillation is used rather than filtration to purify seawater for drinking. Why?

(20 marks)

14. The diagrams below show simple experiments on the speed of diffusion of gases.



Complete the following explanations. Diagram 1 has been done for you.

Diagram 1 There is air inside and outside the porous pot so the rate of diffusion of air into the pot is the same as the rate of diffusion of air out of the pot. The pressure inside and outside the pot is the same so the coloured liquid is at the same level on each side of the tube.

Diagram 2 (05 marks)

Diagram 3 (05 marks)

(b) As a young Chemistry student, suppose you are told to prepare a workshop for people in your community to sensitize them on the application of Chemistry in everyday life and its economic contribution to the country. Develop short messages which you would deliver to the people in this community about application of Chemistry in everyday life. (10 marks)

END