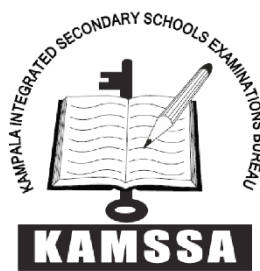


NAME:.....STREAM.....



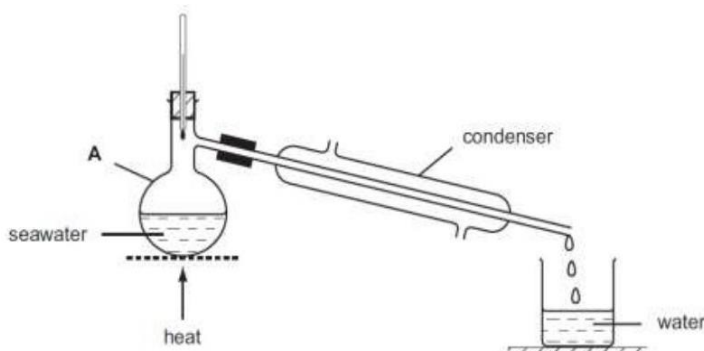
KAMSSA LOWER SECONDARY EDUCATION EXAMINATIONS
CHEMISTRY
SENIOR TWO
END OF YEAR 2022
2 Hours 30 Minutes

INSTRUCTIONS.

- **This paper consists of two sections A and B.**
- **Attempt all questions from section A and any 2(two) in section B.**
- **Answer to section A must be written in the spaces provided.**

SECTION A

1. When substances are burnt in air, they react with one of the components of air.
(a) Identify this component of air and its percentage. (1mark)
.....
(b) Write word equations to show how the following elements react with the component of air in (a) above.
(i) Carbon (1mark)
.....
(ii) Sodium. (1mark)
.....
(ii) Calcium (1mark)
.....
2. Sea water is said to be salty and does not quench thirst, students took a sample of sea water and heated it using the apparatus shown below.

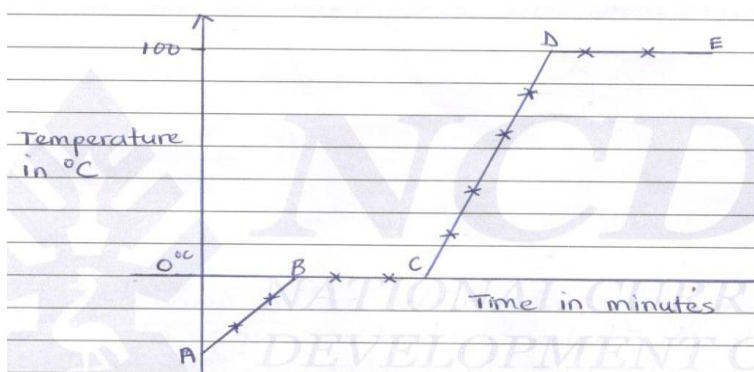


- (i)What is the name of the process shown in the diagram? (01mark)

 (ii)State the name of the apparatus labeled A. (01mark)

 (ii) Explain the function of the condenser. (01mark)

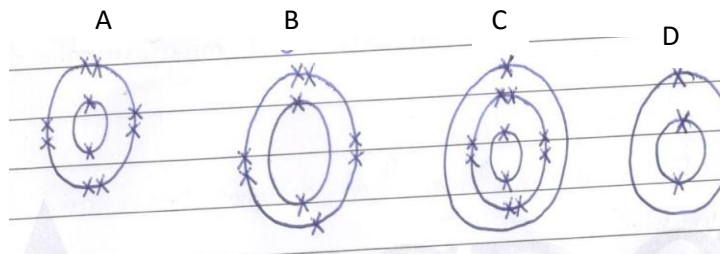
3. The graph below shows heating of ice until boiling starts.



(a)Briefly state what happens in regions.

- (i)AB(01mark)
 (ii)BC(01mark)
 (iii)CD(01mark)
 (iv)DE (01mark)

4. In the study of elements and other substances in chemistry, a periodic table is used in the classification of elements according to their atomic number. Below are some of the electronic structures of different elements. Use them to answer the question below



- (i) Which one of the following structures A-D represents a noble gas ($1\frac{1}{2}$ mark)

 (ii)Which two of these represents atoms from the same group of the periodic table? (02marks)

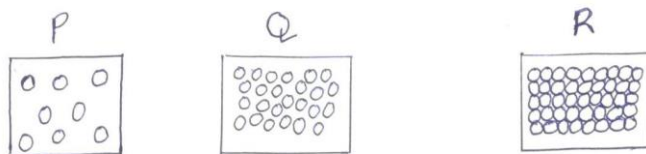
 (iii)With a reason which of these structures represents an atom in period 3 of the periodic table. (01 $\frac{1}{2}$ marks)

5. (a) Acids react with bases to form a salt and water only, state the names of the salts obtained from the following reactions.

- (i)Zinc metal +dilute hydrochloric acids. (01mark)

- (ii) Copper (ii) oxide +dilute hydrochloric acid. (01mark)
-
- (b)Write word equations for the reactions when the following substances react
- (i) Dilute nitric acid and calcium carbonate. (01mark)
-
- (ii)Dilute hydrochloric acid and magnesium. (01mark)
-

6. Matter is anything that occupies space and has weight.



- (i)Name the states of matter
- P (01mark)
-
- Q (01mark)
-
- R (01mark)
-

(b) Stating whether heat is gained or lost in the process, name the process for the change of state of matter from P to R (01mark)

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7. With reference to question **SIX**. Using particle theory of matter explains why you can easily squeeze a plastic gas syringe that is completely filled with air, than that filled with water. (04marks)

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8. In our day to day life we use different materials such as concrete, metallic materials, plastics and rubber in different areas basing on their properties stating a property in each case state area where these materials are used.

- (i)Wood (02marks)
-
-
- (ii)Plastic (02marks)
-
-

9. Carbon dioxide gas can have harmful effects to human life , there are also ways how carbon dioxide can be beneficial in human life and industries. State any 4 ways how carbon dioxide is used in our daily life. (04marks)

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10. With reference to question **NINE** above, explain how an increased amount of carbon dioxide leads to global warming. (04marks)

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SECTION B

11. In our day to day life at home much of us use carbon compounds such as petroleum products, wood and charcoal as sources of fuel, research shows that continued use of these fuels has greatly affected our natural resources from which they are obtained, explain any ten (10) ways how we can sustainably use the available resources. (20marks)
12. At home your father buys items in large quantities as a way of saving money, among the items is salt. You one day return home and find your little sister adding sand to a 20kg salt suck your father bought. Describe any scientific producer you would conduct at home in order to restore the salt purity and save your father from wasting more money. (20marks)
13. The knowledge from chemistry has led to invention of many things to our society, which have affected our lives both positively and negatively.
(a) Explain any 5 ways in each case how this has affected our society
(i) Positively. (10marks)
(ii) Negatively. (10marks)
14. a) Atoms of elements A,B,C and D have Atomic numbers 9,12,8 and 6 respectively.
(i) Writ electronic configurations of these elements. (04marks)
(ii) Which of the following elements are metals and non-metals give reason for your answer in each case. (06marks)
(iii) Elements A, B, C and D form ions. Write the formula of each of the ion formed. (04marks)
- (b) Carbon is an element whose allotropes are diamond and graphite.
(i) Name any other allotropes of carbon. (2marks)
(ii) Outline the differences between the physical properties of diamond and graphite. (04marks)

END