NAME:……..……CLASS:……ADM NO:……..
ANESTAR SCHOOLS
CHEMISTRY
FORM ONE
END-OF-YEAR EXAM - 2022
TIME: 2 HOURS

INSTRUCTIONS:
Answer all questions in the spaces provided.

1. Matter exists in three states, name them. (1 ½ mks)

2. State three importance of studying chemistry. (3mks)

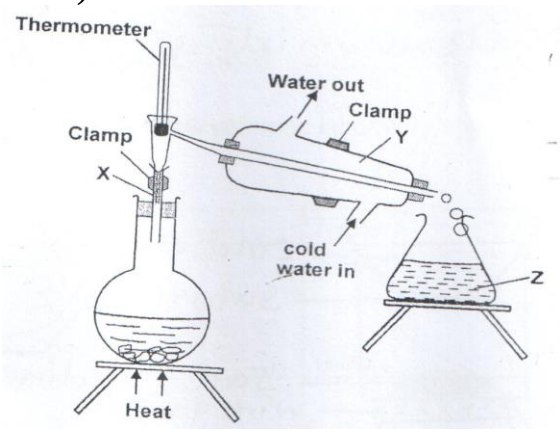
3. Define the following and give example of each.
   a) Non-conductors. (1 ½ mks)

   b) Conductor. (1 ½ mks)

4. Define;
   a) Solute. (1mk)

   b) Solvent. (1mk)

5. The diagram below shows the set up of the apparatus used to separate methanol and water (boiling point $100^{o}C$)



i) Identify:
   a) Apparatus X. (1mk)
   b) Apparatus Y. (1mk)
   c) Liquid Z. (1mk)

ii) Name the method of separation of mixture above. (1mk)

iii) What property of the mixture is used to separate it into separate pure components? (1mk)

6. (a) Draw a well labeled diagram of a non-luminous flame. (3mks)

(b) Explain how the above flame is produced. (1mk)

(c) Explain why the flame above is preferred for heating: (1mk)

7. Explain:
   a) All chemicals being used in an experiment must be labeled. (1mk)

   b) Before trying anything new in the laboratory students must consult the teacher. (1mk)

8. (a) Fill the table below to show the effect of commercial indicators in acidic, basic and neutral solutions. (3mks)

Indicator	Acid	Base	Neutral
Litmus	Red	_____	_____
Phenolphthalein	_____	Pink	_____
Methyl orange	_____	yellow	_____

(b) Dilute sulphuric acid was added to a compound of magnesium P. The solid reacted with the acid to form a colourless solution Q, and a colourless gas R, which formed a white precipitate when bubbled through lime water.
Name:

i) Compound P. (½ mk
ii) Solution Q (½mk
iii) Colourless gas R (½ mk

(c.) Write a word equation for the reaction that took place. (1mk)

9. (a) Mary left some nails outside her home for two days. State and explain what was observed. (2mks)

(b) Apart from oiling and greasing, list two other methods of preventing rusting. (2mks)

10. Write chemical symbols of the following elements:

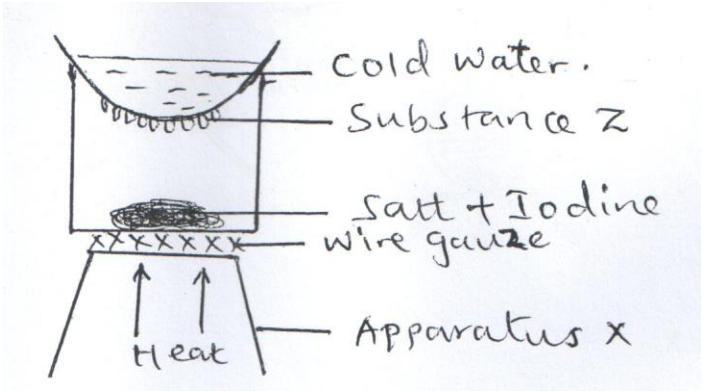
i) Sodium. (½ mk

ii) Silicon (½ mk

iii) Fluorine (½ mk

iv) Copper (½ mk

11. A form one student set up the apparatus below to separate a mixture of iodine and table salt.

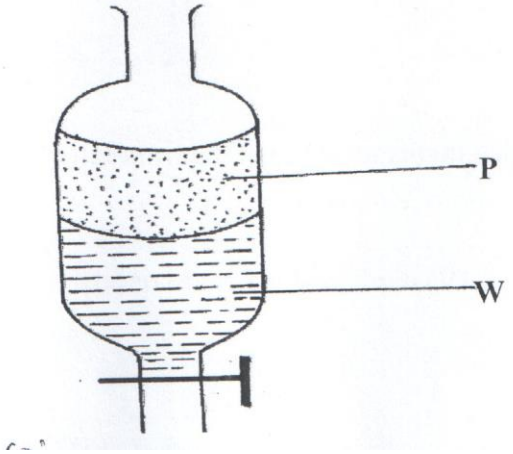


a) Name apparatus x. (1mk)

b) What is the role of cold water in the watch glass? (1mk)

c) Identify substance z. (1mk)

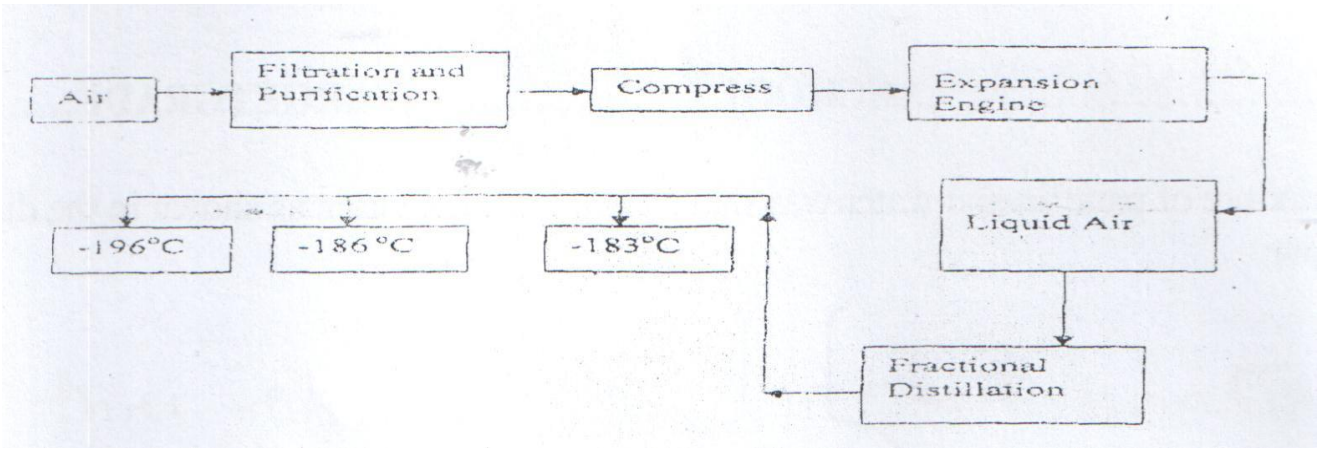
12. A mixture of kerosene and water can be separated using the piece of apparatus drawn below.



a) Name the apparatus. (1mk)

b) State two physical properties that make it possible to separate such a mixture. (2mks)

13. Oxygen is obtained on large scale by the fractional distillation of liquid air as shown on the flow chart below.

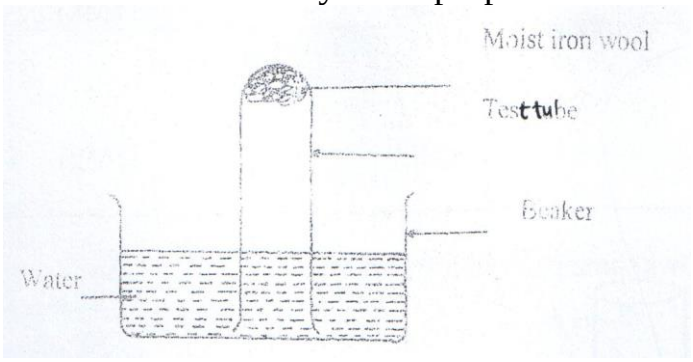


a) Which substance is removed at the filtration stage? (1mk)

b) Explain how carbon (IV) oxide and water vapour are removed before liquefaction of air. (2mks)

c) Identify the components that are collected at -186^{o}C, -196^{o}C and -183^{o}C.(1½ mk
   i) -186^{o}C
   ii) -196^{o}C
   iii) -183^{o}C

14. The set up below was used to study some properties of air



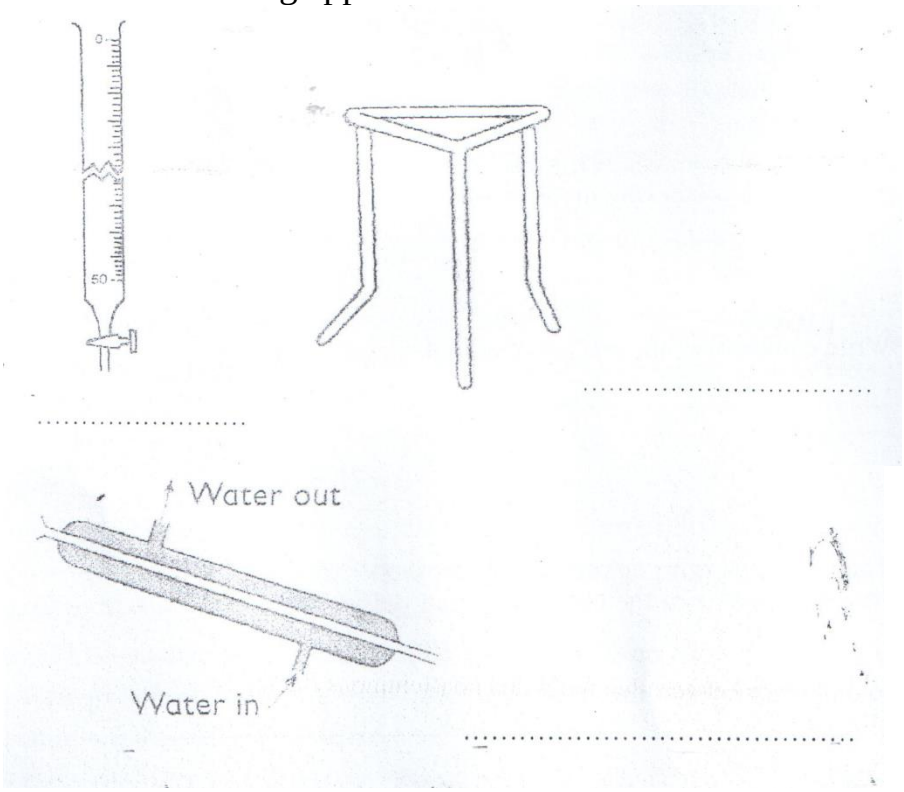
State and explain two observations that would be made at the end of the experiment. (2mks)

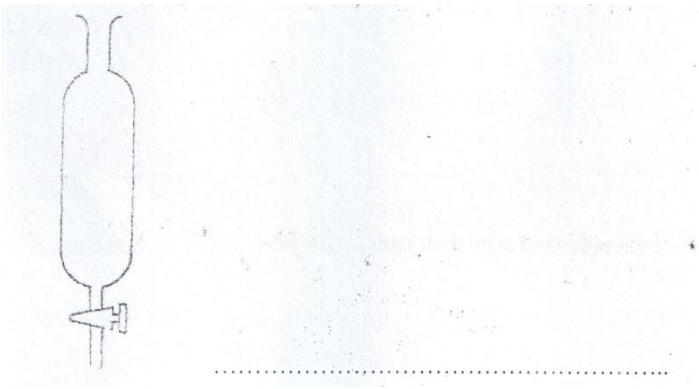
15. Define:

a) Oxidation. (1mk)

b) Reduction. (1mk)

16. Name the following apparatus and state their uses. (5mks)





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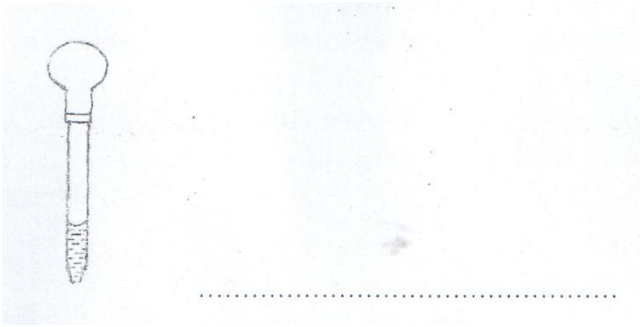

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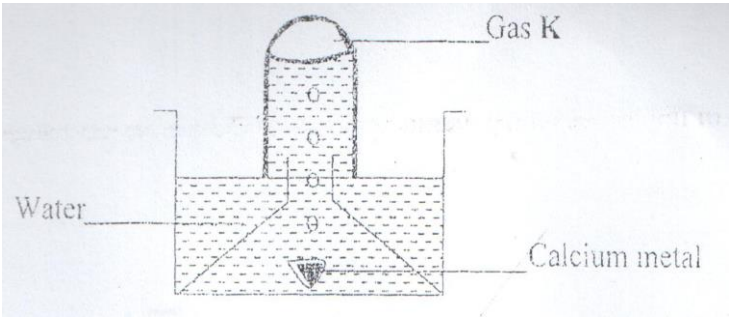
17. Name the elements present in the following compounds.
    a) Magnesium oxide - (1mk)
    b) Carbon (IV) oxide - (1mk)
    c) Potassium sulphate - (1mk)
    d) Calcium carbonate

18. Write word equations for the following reactions. (3mks)
    a) Magnesium and sulphuric (VI) acid.
    b) Sodium hydroxide and hydrochloric acid.
    c) Calcium carbonate and nitric acid.

19. The set up below was used to collect gas K, produced by the reaction between water and calcium metal.



a) Name gas K.

b) At the end of the experiment, the solution in the beaker was found to be a weak base. Explain why the solution is weak base. (1mk)

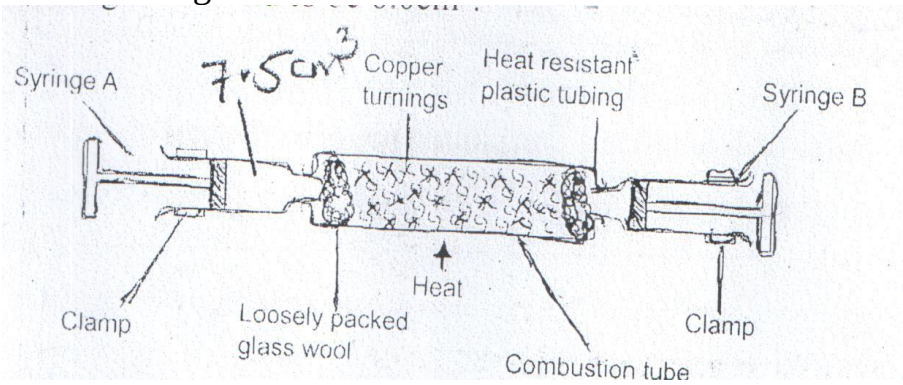
c) Write a word equation for the reaction which took place. (1mk)

20.(a) List two sources of water. (2mks)

(b) What is a hydrocarbon? (1mk)

(c.) What products are formed when candle was burn in air. (1mk)

21.The set-up below shows investigation for percentage proportion of gas M in air. Study it and answer the questions that follow.
Air is first passed slowly and steadily until there is no further change. The volume of air in syringe A before heating was 7.5cm while the air in the same syringe at the end of heating was found to be 6.0cm^3.



a) Name the gas M which was used up in this reaction. (1mk)

b) What is the use of glass wool plug in this experiment? (1mk)

c) Write a word equation for the reaction which took place in the combustion tube. (1mk)

d) Why is air passed slowly and repeatedly? (1mk

e) Calculate the percentage volume of gas M used in the reaction. (1mk)

22. Explain the following

a) Potassium and sodium are not reacted with dilute acids to produce hydrogen gas. (1mk)

b) Copper metal is not used to prepare hydrogen gas. (1mk)

c) State two uses of hydrogen gas. (2mks)

23. (a) What is an atom? (1mk)

(b) Name the sub atomic particles. (1 ½ mk

24. Write the electron arrangement of the following atoms. (3mks)

a) Aluminium atom –

b) Calcium atom –

c) Carbon –

25. Silicon consist of three isotopes as follows;

Silicon – 28 = 92.2%
Silicon – 29 = 4.7 %
Silicon – 30 = 3.1%

Determine the relative atomic mass (RAM) of silicon. (3mks)