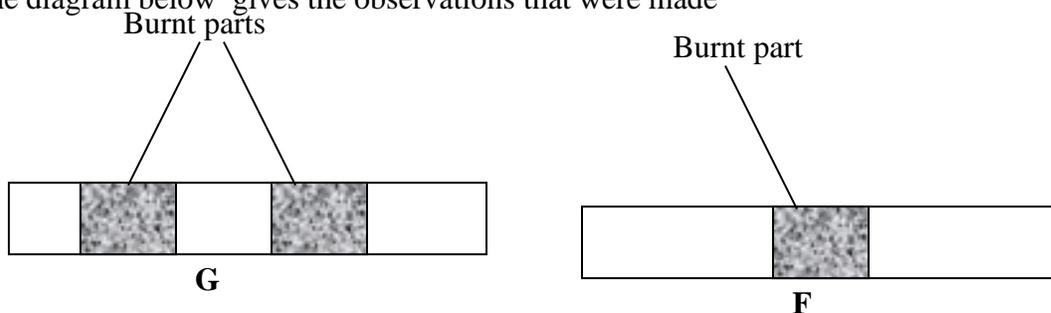
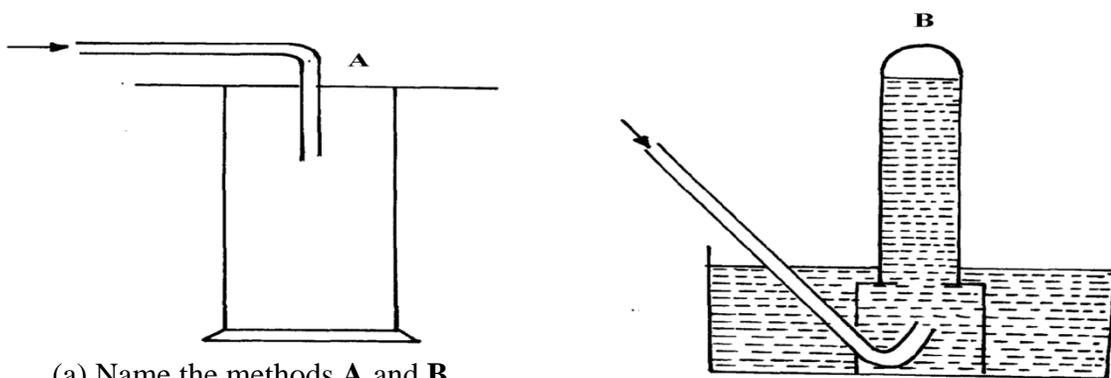


CHAVAKALI HIGH SCHOOL
FORM 1 HOLIDAY ASSIGNMENT 2019

1. Wooden splints **F** and **G** were placed in different zones of a Bunsen burner flame. The diagram below gives the observations that were made

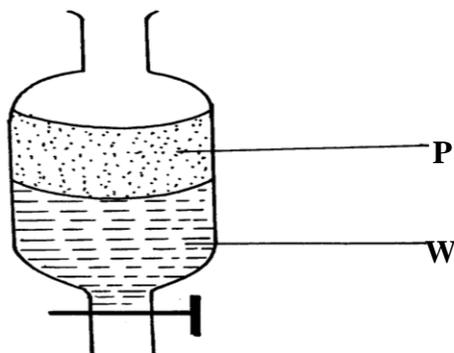


- (a) Explain the difference between **F** and **G**
 (b) Name the type of flame that was used in the above experiment
2. The diagram below shows three methods for collecting gases in the laboratory



- (a) Name the methods **A** and **B**
 (b) From the methods above, identify **one** that is suitable for collecting sulphur (IV) oxide. Explain

3. A mixture of hexane and water was shaken and left to separate as shown in the diagram below:

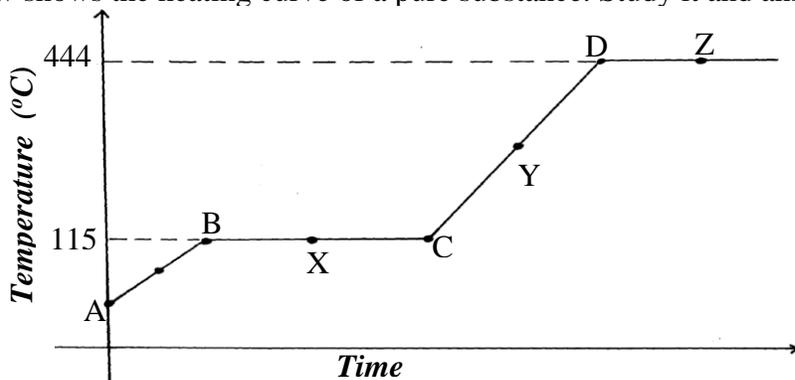


State the identity of;

- (i) **P** (ii) **W**

4. A crystal of copper (II) sulphate was placed in a beaker of water. The beaker was left standing for two days without shaking. State and explain the observations that were made.

5. The diagram below shows the heating curve of a pure substance. Study it and answer the questions that follow:



- (a) What physical changes are taking place at points **X** and **Z**?
 (b) Explain what happens to the melting point of sodium chloride added to this substance
6. The paper chromatography of a plant extract gave the following results:

Solvent	Number of spots
X	6
Y	2
Z	3

- (a) Which is the most suitable solvent for purifying the extract? Explain
 (b) Ball pen cannot be used to mark solvent front in the above chromatography. Explain
7. Name the process which takes place when:
- (a) Solid Carbon (Iv) Oxide (dry ice) changes directly into gas
 (b) A red litmus paper turns white when dropped into chlorine water
 (c) Propene gas molecules are converted into a giant molecule
8. A sample of copper turnings was found to be contaminated with copper (II) oxide. Describe how a sample of copper metal can be separated from the mixture
9. Copper (II) oxide and charcoal are black solids. How would you distinguish between the two solids?
10. The two elements **P** and **R** were separately burned in air, the products gave the results recorded in the table below:

ELEMENTS PHYSICAL STATE AT ROOM TEMPERATURE	P SOLID	R SOLID
Physical states of products	White solid powder only	Colourless gases L and M
Nature of solutions in water	Basic	L strongly acidic M slightly acidic

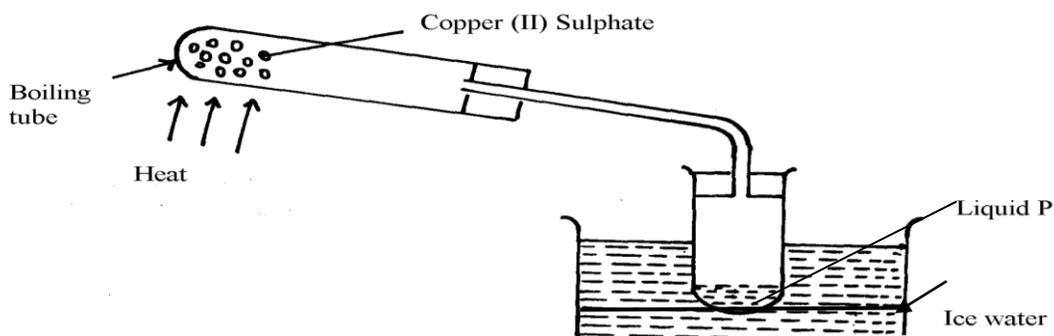
- (a) Suggest the identity of element **R**.
 (b) Describe how the nature of the solutions of the of the oxides were determined
11. Without using any laboratory chemical, describe a simple laboratory experiment to distinguish between calcium hydrogen carbonate and sodium hydrogen carbonate
12. Cooking oils comprise of a mixture of compounds which have a boiling point range of 23°C to 27°C.
- (i) What evidence is then to support the statement that cooking oil is a mixture?
 (ii) Name another experimental technique that could be used to confirm your answer in part (i) above

13. A form 1 student carried out the separation as shown in the set-up below:-

Substance	Water	Concentrated sulphuric(VI)acid	Concentrated sodium hydroxide
Ethene	Slightly soluble	Soluble	Insoluble
Ammonia	Very soluble	Very soluble	Very soluble
Hydrogen	Slightly soluble	Insoluble	Insoluble

- (i) Identify the method above.....
- (ii) Give **one** of its disadvantages
- (iii) Name a mixture which can be separated by the set-up above

14. The apparatus below were used by a student to study the effect of heat on hydrated copper II sulphate



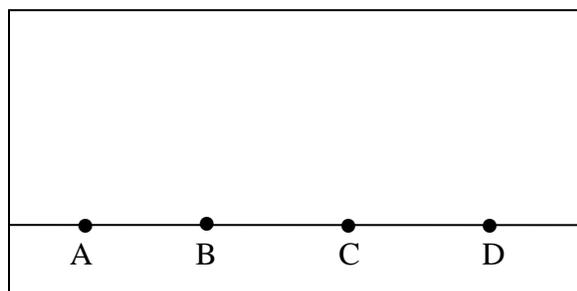
- (a) What is the role of the ice cold water
- (b) Name liquid **P**
- (c) What observation is made in the boiling tube

15. Classify the following processes as chemical changes or physical changes

<u>Process</u>	<u>physical or chemical</u>
Neutralization
Sublimation
Fractional distillation
Displacement reaction

16. State **two** criteria for determining the purity of a substance

17. a)i) The diagram below show spots of a pure substance **A, B,** and **C** on a chromatography paper. Spot **D** is that of a mixture



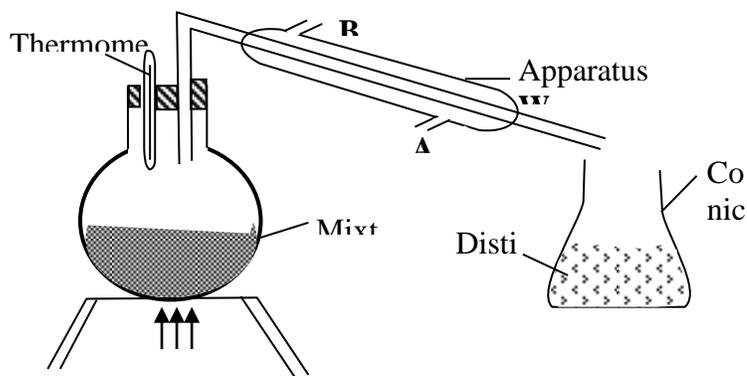
After development **A**, **B**, and **C** were found to have moved 8cm, 3cm and 6cm respectively. **D** had separated into two spots which had moved 6cm and 8cm
On the diagram above;

- I. Label the baseline (origin)
- II. Show the positions of all the spots after development
 - ii) Identify the substances present in mixture **D**
- b) Describe how solid ammonium chloride can be separated from a solid mixture of ammonium chloride and anhydrous calcium chloride
- c) The table below shows liquids that are miscible and those that are immiscible

Liquid	L ₃	L ₄
L ₁	Miscible	Miscible
L ₂	Miscible	Immiscible

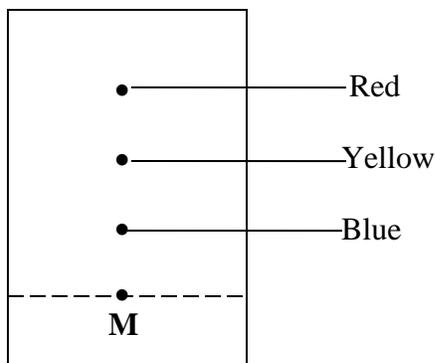
Use the information given in the table to answer that questions that follow;

- i) Name the method that can be used to separate L₁ and L₂ from a mixture of the two
 - ii) Describe how a mixture of L₂ and L₄ can be separated
18. A student left some crushed fruit mixture with water for some days. He found the mixture had fermented. He concluded that the mixture was contaminated with water and ethanol with boiling point of 100°C and 78°C respectively. The set-up of apparatus below are used to separate the mixture.



- (i) Name the piece of apparatus labelled **W**
 - (ii) What is the purpose of the thermometer in the set-up?
 - iii) At which end of the apparatus **W** should tap water be connected?.....
 - (iv) Which liquid was collected as the first distillate? Explain
 - (v) What is the name given to the above method of separating mixture?
 - (vi) State **two** applications of the above method of separating mixtures
 - (vi) What properties of the mixture makes it possible for the component to be separated by the above methods?
- b) Pellets of sodium hydrogen and anhydrous Copper (II) sulphate were put in separate Petri-dishes and left in the open for two hours. Explain the observation in each Petri-dish.

19. The chromatography below shows the constituents of a flower extract using an organic solvent:-



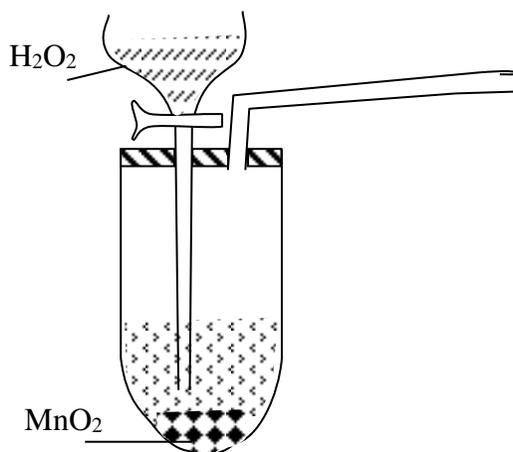
- (a) (i) Name a possible organic solvent you can use for this experiment
 (ii) State **one** property that makes the red pigment to move the furthest distance from **M**
 (iii) Describe how one could get a sample of yellow pigment
 (iv) On the diagram indicate solvent front
 (b) Describe how Aluminium chloride can be separated from a mixture of aluminium chloride and sodium chloride

20. Study the information below and answer the questions that follow:

Solid	Cold water	Hot water
R	Soluble	Soluble
V	Insoluble	Insoluble
S	Insoluble	Insoluble

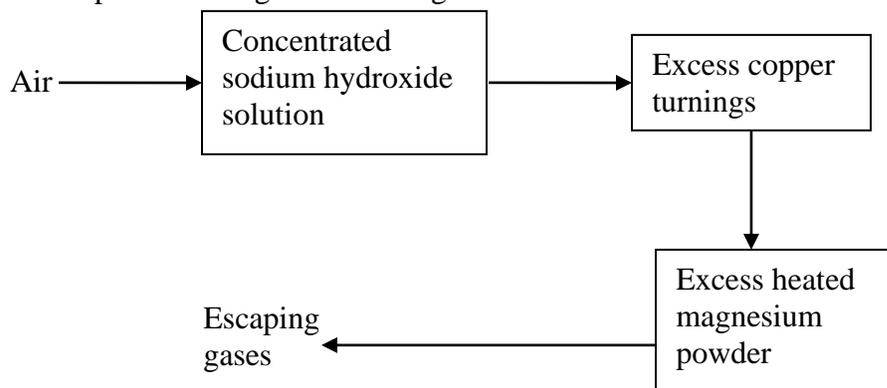
Describe how the mixture of solid **R**, **S**, and **V** can be separated

21. The set-up below was used to prepare a sample of oxygen gas. Study it and answer the questions that follow.



- (i) Complete the diagram to show how Oxygen can be collected
 (ii) Write a chemical equation of the reaction to produce oxygen

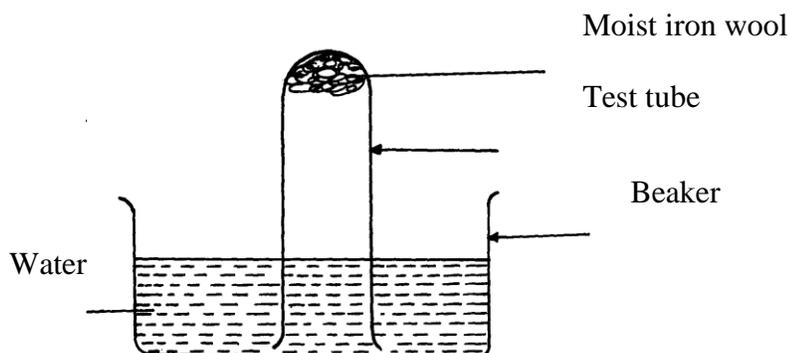
22. Air was passed through several reagents as shown below:



- (a) Write an equation for the reaction which takes place in the chamber containing Magnesium powder
 (b) Name **one** gas which escapes from the chamber containing magnesium powder.
 Give a reason for your answer

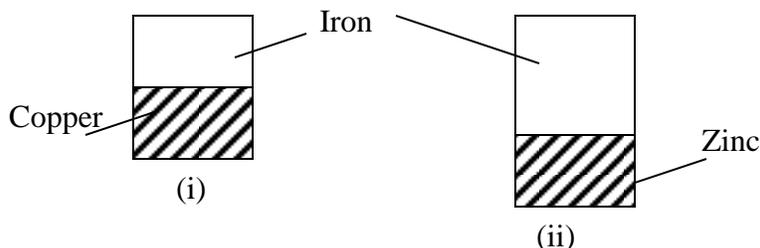
23. (a) What is rust?
 (b) Give **two** methods that can be used to prevent rusting
 (c) Name **one** substance which speeds up the rusting process

24. 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

25. A form two student in an attempt to stop rusting put copper and Zinc in contact with iron as shown:-



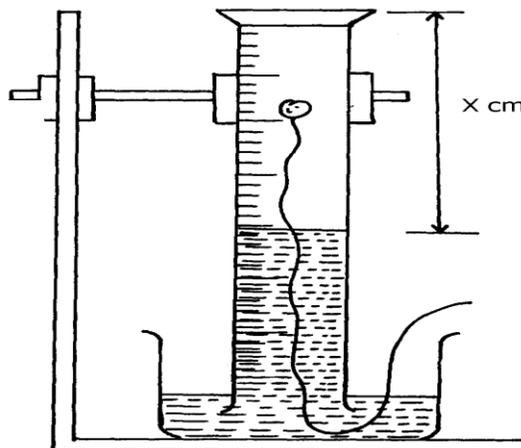
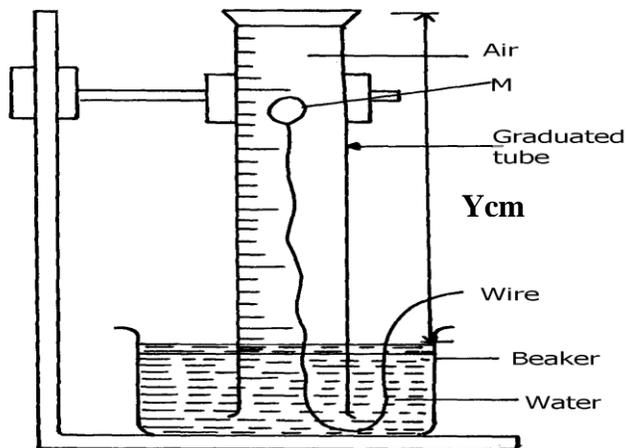
- (a) State whether rusting occurred after one week if the set-ups were left out
 (b) Explain your answer in (a) above
26. A group of students burnt a piece of Mg ribbon in air and its ash collected in a Petri dish.
 The ash was found to comprise of magnesium Oxide and Magnesium nitride
 (i) Write an equation for the reaction leading to formation of the magnesium nitride

- (ii) A little water was added to the products in the Petri dish. State and explain the observation made.
- (iii) A piece of blue litmus paper was dipped into the solution formed in (b) above. State the observation made.

26. A form one class carried out an experiment to determine the active part of air. The diagram below shows the set-up of the experiment and also the observation made.

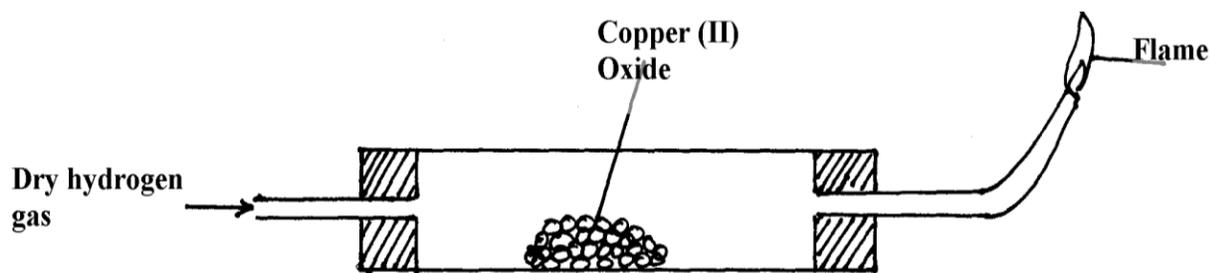
(i) At the beginning

(ii) observation at the end of the experiment



- (a) (i) Identify substance **M**
- (ii) State **two** reasons for the suitability of substance **M** for this experiment
- (b) Write the equation for the reaction of substance **M** and the active part of air
- (c) (i) Using the letters **Y** and **X** write an expression for the percentage of the active part of air
- (ii) The expression in (c)(i) above gives lower value than the expected. Explain
- (d) (i) Explain the observation made when litmus paper is dipped into the beaker at the end of the experiment
- (ii) Name the active part of air
- (iii) Suggest another method that can be used to determine the active part of air

27. a) The set-up below is used to investigate the properties of hydrogen.



- i) On the diagram, indicate what should be done for the reaction to occur
- ii) Hydrogen gas is allowed to pass through the tube for some time before it is lit. Explain
- iii) Write an equation for the reaction that occurs in the combustion tube
- iv) When the reaction is complete, hydrogen gas is passed through the apparatus until they cool down. Explain
- v) What property of hydrogen is being investigated?
- vi) What observation confirms the property stated in (v) above?
- vii) Why is zinc oxide not used to investigate this property of hydrogen gas?