

NAME.....ADM.NO:.....

SIGN.....

**CHEMISTRY**

**TIME: 2 HOURS**

**FORM 1**

**INSTRUCTIONS TO STUDENTS**

1. Answer all questions in this question paper.
2. All your answers must be written in the spaces provided in this question paper.

**FOR EXAMINERS USE ONLY**

Question	Maximum score	Candidates score
1-16	70	

1. (i).Define Chemistry. (1mk)

*Study of the structure, properties, and composition of matter and the changes that matter undergoes.*

(ii)State three roles of chemistry in the society. 3mks

*Manufacture of drugs to fight diseases*

*Manufacture of fertilizers to increase food production*

*Manufacture of alternative fabrics like nylon and polyester.*

*Manufacture of soap*

2. (i) What is a drug. 1mks

*Any substance that alters the body function.*

(ii)(a). Name three frequently abused drugs. (3mks)

*Tobacco*

*Alcohol*

*Khat*

*Bhang*

(b). State two long term effects of drug abuse. (2mks)

*Hallucination*

*Depression*

*Addiction*

3. (a). State three apparatus used for measuring accurate volumes of liquid. (3mks)

*Burette*

*Pipette*

*Volumetric flask*

*Syringe*

(b). Give two reasons why most laboratory apparatus are made of glass. (2mks)

*Glass is used for heating.*

*Glass does not react with reagents*

4. (i) What is a flame? (1mk)

*A mass of burning gas*

5. Putting off flames is one of the laboratory safety rules. State three other rules. (3mks)

*Don't eat in the laboratory*

*Don't run in the laboratory*

*Always wait for teachers instruction*

*Open doors and window for fresh air*

6. (i) What is a mixture? (1mk)

*A component of two or more substances that are not chemically combined*

(ii). State two physical means of separating a mixture. (2mks)

*Filtering*

*Decanting*

7. Otieno, a form one student at Anestar High School accidentally mixed sulphur and iron filings.

(a). Suggest an appropriate method of separation you would advice him to use to separate the mixture. (1mk)

*Use of magnet*

(b) . Give a reason for the choice of your answer. (2mk)

*Iron fillings are magnetic while sulphure is not magnetic. Iron fillings will be atructed by a magnet*

(c) .Describe how he would use the method named in (a) above to separate the sulphur and iron filings. (2mks)

*Move the magnet over the mixture*

*Iron fillings will be attracted leaving sulphur*

8. (a) Name two substances that sublime when heated. (2mks)

*Iodine*

*Solid carbon (iv) oxide*

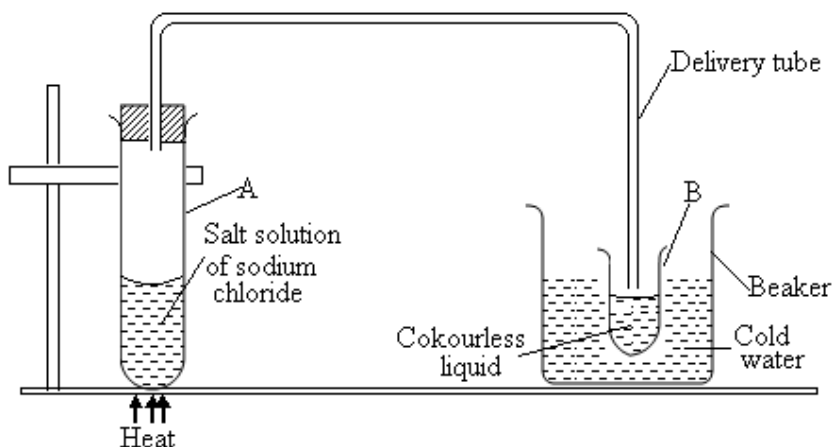
*Aluminium chloride*

- (b). Give two reasons why dry ice (solid carbon (IV) oxide) is preferred to be used in cold boxes by ice cream vendors over ordinary ice. (2mks)

*It's a better coolant*

*It vapourises leaving no wetness*

9. The set up below shows the apparatus used to demonstrate simple distillation process. Study it and answer the questions that follow.



- (a) What is observed in the delivery tube as the solution boils? (1 mk)

*Steam passing through the delivery tube and condense on the cooler parts  
Steam cools.*

- (b) What is the purpose of cold water in the beaker? (1 mk)

*Condense the vapour*

- (c) What is observed in the test tube A after all the solvent has evaporated? (1 mk)

*A white solid remains  
The white solid is sodium chloride*

- (d) Name the liquid you expect to collect in tube B. (1 mk)  
*Water*

10. Differentiate between physical and chemical changes as follows: (4 mks)

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Chemical change	Physical change
(i) <i>Not easily reversible</i>	<i>Are reversible</i>
(ii) <i>Always accompanied by heat change</i>	<i>No heat change</i>
(iii) <i>Reactants have different masses compared to products formed</i>	<i>No change in mass</i>
(iv) <i>Always produce new substance</i>	<i>No new substances formed</i>

11. Write the chemical symbols of the following elements.

(5 mks)

(i) Copper – *Cu*

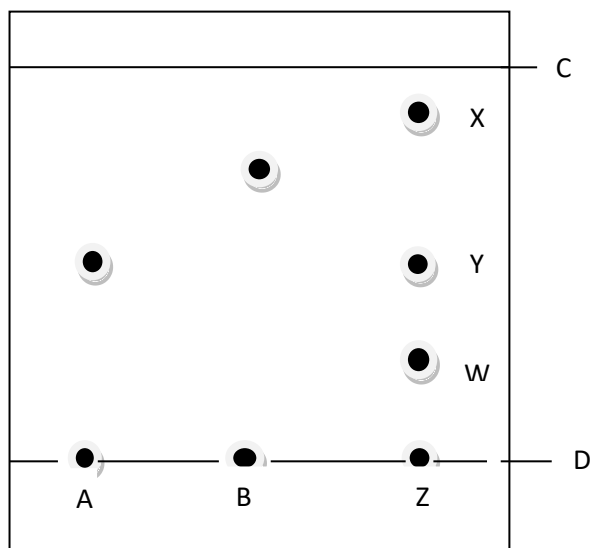
(ii) Sodium – *Na*

(iii) Potassium – *K*

(iv) Lead – *Pb*

(v) Calcium – *Ca*

12. Spots of pure pigments A and B and a mixture Z were placed on a filter paper and allowed to dry. The paper was then dipped in a solvent. The results obtained were as on the paper chromatogram.



(a) Which line is the: (2mks)

(i) base line – D

(ii) Solvent front – C

(b) Which of the pure pigments was a component of Z? Explain. (2 mks)

A

(c) (i) Name a solvent that is used in paper chromatography. (1 mk)

*Propanone*

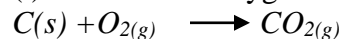
(ii) Why is water not a suitable solvent in paper chromatography? (1 mk)

*It does not dissolve most substances*

*Water does not show splitting of substances*

(d) Write a word equation for the reactions between:

(i) Carbon and oxygen -



Carbon + Oxygen  $\longrightarrow$  carbon (iv) oxide

(2 mks)

12. (a). Define the following terms:

I. A saturated solution. (1mk)

*A solution that can not take any more solute at any given temperature*

II. Crystallization. (1mk)

*Formation of crystals from a saturated solution.*

(b). Give two industrial applications of crystallization as a method of separating soluble substances from their solutions. (2mks)

a. *Extraction of salt from salty water*

b. *Extraction of sugar from sugar cane*

c. *Extraction of medicinal substances from plants*

13 define the following terms. (3mks)

a. Atoms:.. *Smallest particle of an element which take part in chemical change.*

b. Molecules. *Smallest particle of an element or compound which can exist separately*

c. Compound. *Pure substance made up of two or more elements chemically combined*

14. Name the element present in the following compounds 3mks

a. Sodium bromide: *sodium and bromine*

b. Lead sulphate: *lead, sulphur and oxygen*

c. Potassium iodide: *potassium and iodine*

15. State three observation made when a piece of sodium is placed on the surface of water. 3mks

a. *Darts on the surface of water.*

b. *Melts to a silvery ball*

c. *Produces a hissing sound.*

16. Give three application of chromatography. 3mks

a. *Used in pharmaceutical to test purity of drugs*

b. *To identify contaminant in food and drinks*

c. *To identify banned substances in blood in sports industry.*