

NAME CLASS.....

FORM 1

END OF YEAR EXAMINATION 2017

TIME: 2 HOURS

INSTRUCTIONS

- The paper contains two section A and B
- Answer ALL questions in the spaces provided
- Mathematical tables may be used.
- All working **MUST** be clearly shown where necessary

FOR EXAMINERS' USE ONLY

Questions	Maximum score	Candidates' score

This paper consists of 9 printed pages. Students should check question papers to ensure that all pages are printed as indicated and that no questions are missing.

Turn over

SECTION A

1. What is matter. (1 mark)

2. On the table below, give three states of matter and for each state, give ONE property (3 marks)

States of matter	Properties
a)	
b)	
c)	

3(a) What are drugs? (1 mark)

b) What do the following terms mean?

i) Over the counter drug ? (1 mark)

ii) Prescription (1 mark)

iii) Drug abuse (1 mark)

4. State **FOUR** ways of preventing drug abuse (2 marks)

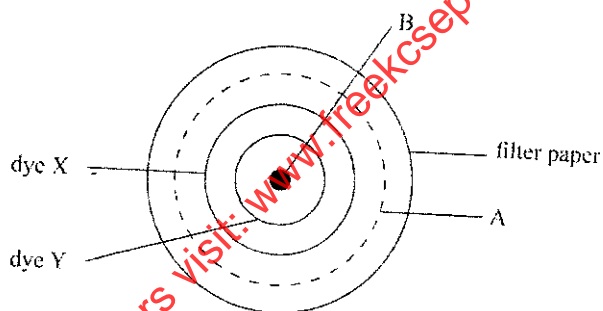
5. A student wishes to separate solid Y from its mixture with two other solids X and Z. Study the table below and advise her on how she can obtain a pure sample of Y. (3 marks)

SOLID		SOLVENT		
SOLID	SOLVENT	WATER	METHYBENZENE	ACETONE
X		INSOLUBLE	SOLUBLE	SOLUBLE
Y		SOLUBLE	INSOLUBLE	SOLUBLE
Z		SOLUBLE	INSOLUBLE	INSOLUBLE

6(a) State **ONE** difference between corrosion and rusting? (2 marks)

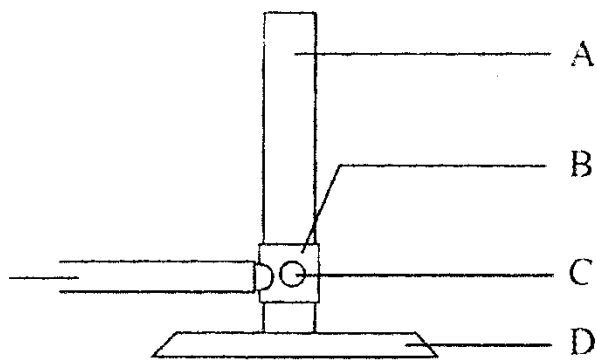
b) Give **TWO** similarities of combustion and rusting (2 marks)

7. What is the meaning of the following terms
- a) Saturated solution (1 mark)
- b) Crystals (1 mark)
- c) Compound (1 mark)
8. Give **TWO** reasons why laboratory apparatus are made of glass (2 marks)
9. The diagram below shows the appearance of the filter paper after an experiment.



- a) What is the name given to the figure? (1 mark)
- b) Name the parts labelled A and B (1 mark)
- A-
- B-
- c) Identify the most soluble dye from the figure (1 mark)

10. The diagram below shows a Bunsen burner.



a) Name the parts labelled A-D (2 marks)

- A- C-
B- D-

b) State the functions of the parts labelled A-D (2 marks)

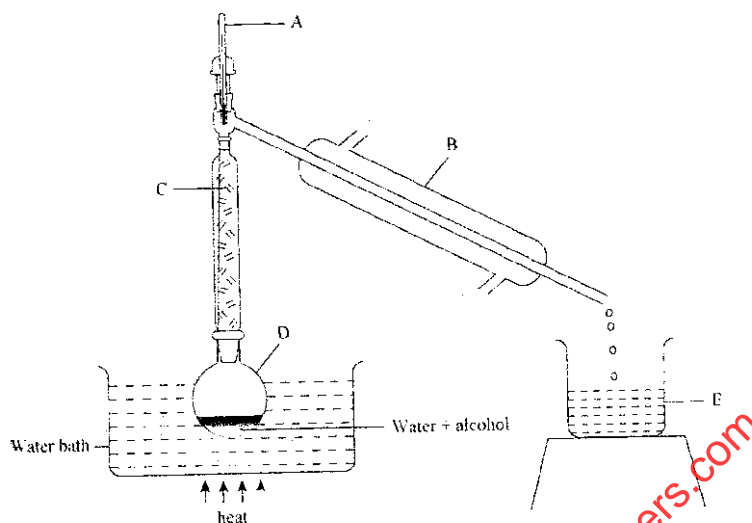
- A-
B-
C-
D-

9. Study and complete the table below. The first one has been done for you. (12 marks)

	Experiment	Observation	New products	Type of change
a)	Heating crystals of Ammonium chloride	White solid sublimes to form dense white fumes	Ammonia gas and hydrogen chloride gas	Reversible chemical change
b)	Heating gently copper (II) sulphate crystals			
c)	Heating a mixture of Iron fillings and sulphur powder			
d)	Cooling steam using a liebig condenser			
e)	Heating of copper (II) carbonate			

SECTION B

10.A mixture of water and ethanol was separated using the apparatus below

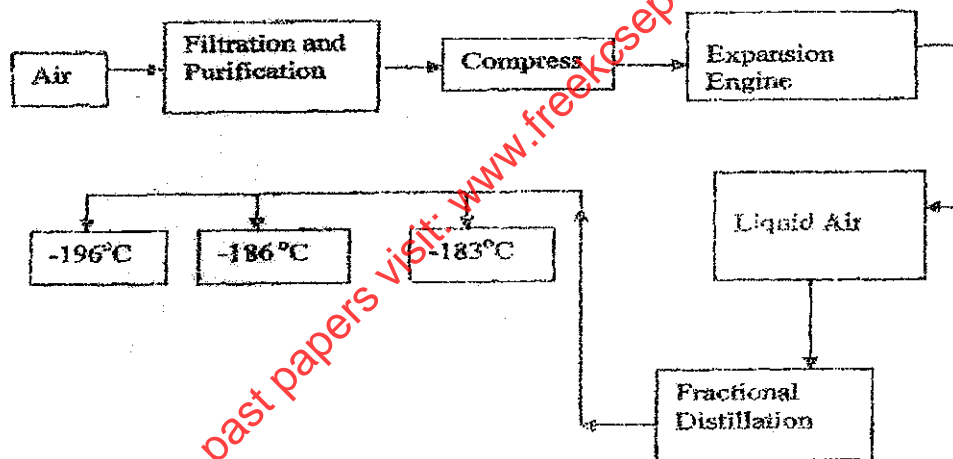


- a) Name the parts labelled A-E and state their functions (10 marks)
- A-
- B-
- C-
- D-
- E-
- b) On the diagram indicate the flow of water. (2 marks)
- c) i) Which liquid was collected first in container E? (1 mark)
- ii) Explain your answer in (c)i above. (1 mark)
- d) State the reason why apparatus B should be slanting and not horizontal. (1 mark)
- e) What name is given to this method of separation? (1 mark)

f) Differentiate between this method and simple distillation. (2 marks)

11(a) From the following list of gases, "oxygen, nitrogen, hydrogen, carbon(II) oxide, carbon(IV)oxide"
Select:-

- i) Two gases which are not likely to be found in air (2 mark)
 - ii) Two gases which when chemically combined, form water vapour (1 mark)
 - iii) other than the gases mentioned in (a) above, mention any other gas present in air and give its approximate percentage. (1 mark)
- b) Oxygen is obtained on large scale by fractional distillation of air as shown below



- i) Explain why air is considered as a mixture (1 mark)
- ii) Identify the substance that is removed at filtration stage (1 mark)
- iii) Explain why carbon(IV)oxide and water vapour are removed before liquefaction of air. (1 mark)
- iv) Describe how air free of dust particles , carbon(IV)oxide and water vapour is liquefied. (3 marks)

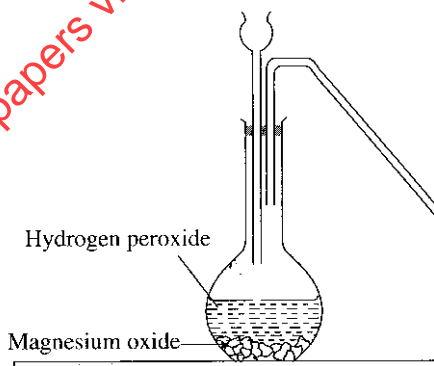
- v) Nitrogen, oxygen and argon are obtained from liquid air by fractional distillation as shown above. State the physical property that makes it possible to separate them (1 mark)
- vi) Arrange the gases in (v) above in order of how they distill, starting with the first (3 marks)
12. Identify the suitable chemical technique that could be used to separate the following and in each case give a reason. (6 marks)
- a) Oil from a mixture with water
 - b) Ethanol from a mixture of water and ethanol
 - c) Common salt from its mixture with sand
 - d) Iodine crystals from a mixture of iodine and sand
 - e) The mixture of soluble dyes used to colour "black current" sweets
 - f) Petrol from crude oil
 - g) Paraffin from a mixture of paraffin and water
 - h) Water from copper (II) sulphate solution
 - i) Propanone (b.p 58 °C) from a mixture with water
 - j) Ammonium chloride from solid fertilizer
 - k) Two amino acids in solution
 - l) Copper(II) oxide from a mixture of copper(II) oxide and copper(II) sulphate
- 14(a) State the percentage by volume of three gases usually present in ordinary air (2 marks)
- b) Name two substances which are essential for iron to rust. (2 marks)
 - c) Name one other substance which can accelerate the rusting process (1 mark)
 - d) Give two methods which can be used to prevent rusting of iron (2 marks)

e) Draw labelled diagrams to show that the substances named in (b) are needed for Iron to rust and if either of the two is absent, no rusting takes place. (2 marks)

f) Some moist iron wool was placed in a test tube and the tube was inverted and placed in a beaker of water and kept for a week. After this, no further change took place. The air column in the tube originally 10cm, was now reduced to 8cm. Explain this observation. What would be the effect on the level of water in the tube if a large piece of iron wool were used? Give a reason for your answer (2 marks)

g) Write a balanced chemical equation for the formation of rust (Hydrated Iron (III) Oxide). (1 mark)

15(a) A form one student from Starehe boys set up the following apparatus for the preparation and collection of a sample of dry Oxygen gas. Identify two mistakes in his set up. (1 mark)



b) Complete the diagram to show how dry oxygen gas is collected (3 marks)

c) Hydrogen peroxide decomposes in the presence of a **catalyst**. Write an equation for the decomposition (1 mark)

d) what is the meaning of the term catalyst (1 mark)

e) Name **TWO** solid substances when heated together can be used to prepare oxygen. (1 mark)

- f) Write balanced chemical equations formed when each of the following substances burns in excess air or oxygen (1 mark)
- i) Sulphur
 - ii) Sodium (1 mark)
- g) State **FOUR** industrial uses of oxygen (2 marks)

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THE END