

FORM ONE CHEMISTRY EXAM

1. Give one structural difference between a dropping funnel and a thistle funnel. (1 mk)
2. Define the following terms. (6 mks)
- a) Atom
 - b) Element
 - c) Mixture
3. a) What is a pure substance? (1 mk)
- b) How does impurities affect boiling and melting point of a pure substance? (2 mks)
- i) Boiling point
 - ii) Melting point
4. a) Write down the chemical symbols of the following elements. (4 mks)
- i) Oxygen
 - ii) Sodium
 - iii) Zinc
 - iv) Chlorine

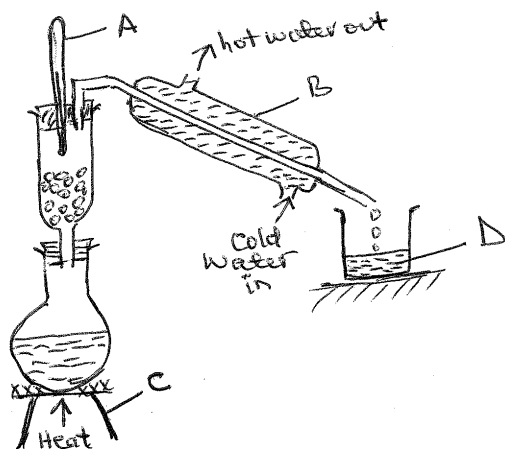
b) Write down a word equation for a reaction where magnesium burns in air to form magnesium oxide. (2 mks)

5. In a paper chromatography, a sample **A** was found to be more soluble than sample **B**. Sample **C** had same solubility as sample **A**, while sample **D** was sticky of all the samples. Mixture **K** contained sample **B** and **D** only. Draw the chromatogram of **A**, **B**, **C**, and mixture **K**. (4 mks)

6. Describe how you can separate a mixture containing ammonium chloride and sodium chloride. (3 mks)

7. Give a reason why dry ice is preferred to be used in cold boxes by ice cream vendors over ordinary ice. (1 mk)

8. The set up below was used by a form one student to separate a mixture of ethanol and water whose boiling points are 78°C and 100°C respectively.



- a) Label parts (3 mks)
- i) A
 - ii) B
 - iii) C
- b) What is the importance of part **A** in the set up? (1 mk)
- c) What name is given to liquid **D**? _____ (1 mk)
- d) Which of the two liquids in the mixture will be collected first? Explain. (2 mks)
9. a) Two men, one from Kisumu and the other from Mombasa imported cars from Dubai at the same time.
After 3 years, the one from Mombasa had to replace parts of the body of his car because they had corroded completely. Why does iron corrode/rust so fast in Mombasa as compared to Kisumu? (1 mk)
- b) What do you understand by zinc plating? (1 mk)

10. a) Solutions can be classified as weak acid, strong acid, weak base, strong base, or neutral. Use the table below to classify the solutions given using the above classification. (4 mks)

Solution	P.H.
A	2
B	5
C	7
D	13

A _____

B _____

C _____

D _____

- b) What is an indicator?

(1 mk)

11. Draw method of collection of gases with the following properties.

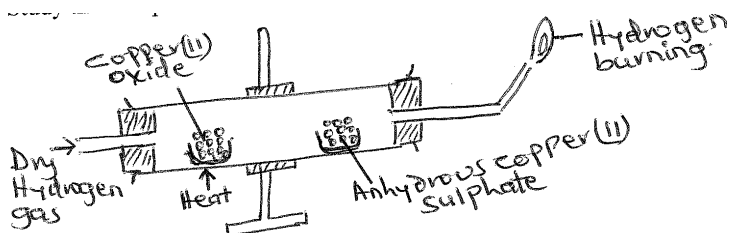
- a) Denser than air.

(1 mk)

- b) Insoluble in water

(2 mks)

12. The apparatus below were set up to investigate properties of hydrogen.



a) State 3 observations made in the combustion tube. (3 mks)

b) Why was excess hydrogen burnt? (1 mk)

c) If iron plated with copper is scratched to expose iron below, rusting of iron takes place. Explain why. (2 mks)

13. State 3 industrial uses of oxygen. (3 mks)

14. a) Define a catalyst. (1 mk)

b) Name the catalyst used in preparing oxygen in the laboratory using hydrogen peroxide. (1 mk)

15. Write word equations to represent the following reactions. (4 mks)

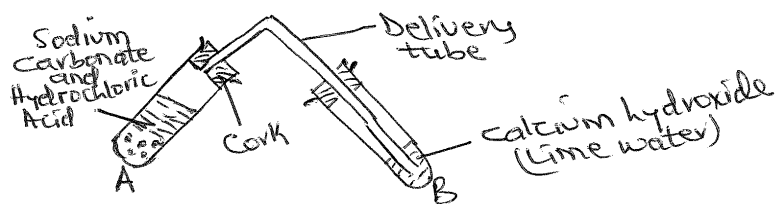
a) Reaction between zinc and hydrochloric acid.

b) Calcium reacting with sulphuric acid.

c) Reaction between sodium carbonate and sulphuric acid.

d) Reaction between calcium carbonate and nitric acid.

16. Study the set up below and use it to answer questions that follow.



a) Write the observation made in test-tube **B** after a short time. (1 mk)

b) Write down a word equation for the reaction taking place in test tube **B**. (2 mks)

17. What is the colour of the following substances under conditions indicated. (4 mks)

substance	Colour when cold	Colour when hot
Zinc oxide		
Lead oxide		

18. a) Which property of hydrogen makes it be used in meteorological balloons? (1 mk)

b) Describe the laboratory test for hydrogen. (1 mk)

c) Name the catalyst used in hydrogenation. (1 mk)

19. Give names of the following processes used to: (4 mks)

a) Obtain a solvent from a saturated solution _____

b) Remove steam from air. _____

- c) Separate insoluble zinc carbonate from water _____
- d) Separate a mixture of nitrogen and helium _____
20. a) State two conditions necessary for rusting to occur. (2 mks)
- b) State two factors that accelerate rusting. (2 mks)
21. Name a suitable method of separating the following: (3 mks)
- a) Iron fillings from sulphur. _____
- b) Paraffin and water _____
- c) Coloured pigments in a brand of juice _____
22. a) Define sublimation. (2 mks)
- b) Name two substances that sublime. (2 mks)
23. a) Define the following terms:
- (i) Oxidation (1 mk)
- (ii) Reduction (1 mk)
- b) Use arrows to label reduction and oxidation reactions in the equation below. (2 mks)
- (i) Copper (II) oxide + Magnesium \rightarrow Magnesium oxide + Copper
- (ii) Using the above equation, identify the reducing and oxidizing agent. (2 mks)
- Oxidising agent _____
- Reducing agent _____

24. (i) Element **Q** reacts vigorously with cold water.
(ii) Element **W** reacts does not react with water but reacts with steam.
(iii) Element **S** does not react with either water or steam.
(iv) Element **X** reacts with cold water explosively.
- a) Arrange the above elements starting with the most reactive. (2 mks)
- b) Which of the above elements are stored in paraffin?
25. When hydrogen is burnt in air, a colourless liquid which turns white anhydrous Copper (II) sulphate blue is formed.
- a) Write a word equation to represent the reaction above. (2 mks)
- b) Name another substance that can be used instead of white anhydrous copper (II) Sulphate. (1 mk)
26. a) What is drug abuse? (2 mks)
- b) Differentiate between prescription drugs and over the counter drugs. (2 mks)
27. How are the following flames produced? (2 mks)
- (i) Luminous flame
- (ii) Non-luminous flame