Student's Name: MARKING SCHEME (0784652712 / 0701706589). *(Tr. Bagoole Daniel)*

School: EDUCAN SCHOOL

Class	Stream
S. 2	

(Write your Name, Class Stream and School in the spaces provided.)

545/1
CHEMISTRY
(Theory)
Paper 1
1 Hour 30 min.

Educan

EDUCAN SCHOOL
Uganda Lower Secondary Certificate of Education.
(U.L.S.C.E)

S.2 COMPETENCE BASED ASSESSMENT EXAMINATIONS
CHEMISTRY
(THEORY)
Paper 1
1 Hour 30 minutes

INSTRUCTIONS:

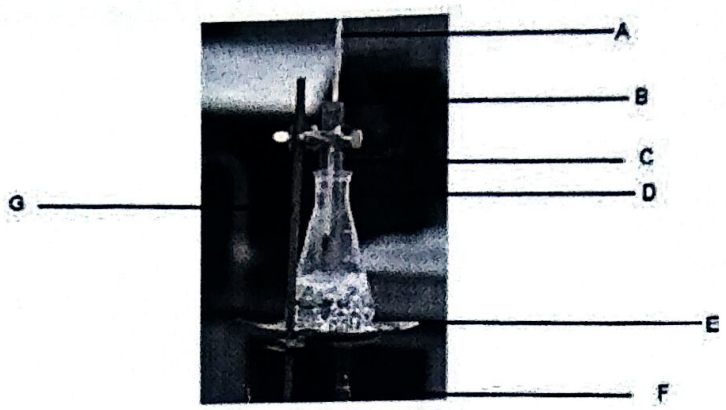
- *This paper consists of* **5** questions which are ***ALL*** *Compulsory*
- *Answer* ***all*** *questions in the spaces provided.*
- *Illustrations in form of drawings should be made where necessary, with a sharp pencil.*

For official use only

Number	*Score*	*Teacher's comment*
1.		
2.		
3.		
4.		
5.		
6.		

SECTION A

1. The figure shows a set of apparatus in the laboratory. Use them to answer the questions that follow



a) Name the apparatuses. *(03 marks*

A Thermometer; ✓ B Boiling tube; ✓

C ..... D Conical flask; ✓

E Wire mesh; ✓ F Bunsen burner; ✓

G Retort stand; ✓

b) State the functions of the apparatuses from the experiment in the picture above. *(03 marks)*

A Detects changes in temperature | Measure temperature; ✓

G Suspends | Holds apparatus; ✓

F Source of heat; ✓

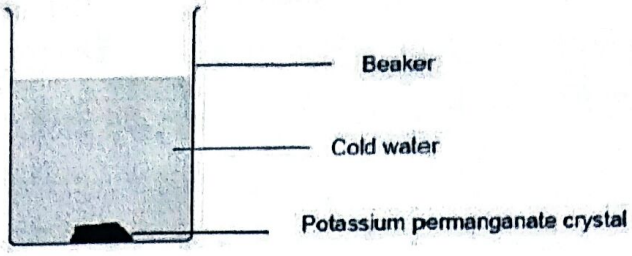
c) Outline four ways how you can conduct yourself in the laboratory during a chemistry experiment to ensure that every one in the laboratory is safe. *(04 marks)*

Wearing gas masks in the laboratory; ✓

Wearing rubber shoes; ✓

Getting instructions from teacher before conducting expts; ✓

2. A large crystal of potassium permanganate was placed in the bottom of a beaker of cold water, and left for several hours.



(a) Describe what would be seen:

(i) after five minutes. *(02 marks)*

Purple colour will start spreading from the crystal; into the solution;

(ii) after several hours. *(02 marks)*

Crystal Completely breaks down; entire cold water turns to a purple solution;

(b) Explain your answers using the idea of particles. *(03 marks)*

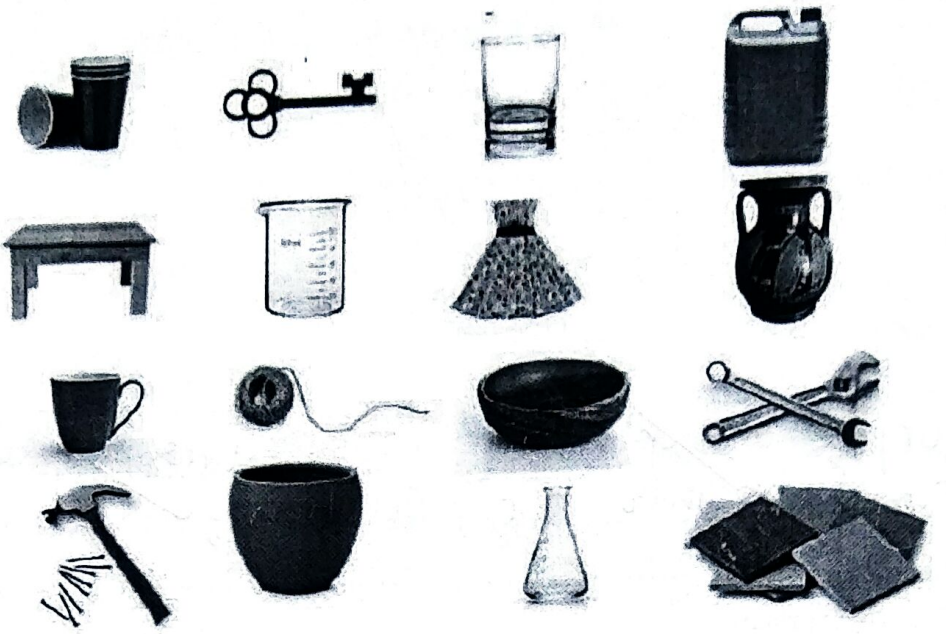
Particles of potassium permanganate crystal break off; diffuse; from region of their higher concentration; into water, where they are less concentrated; until they are evenly distributed throughout the soln.

(c) Explain how you are able to sense the smell of fish being fried by mummy in the kitchen while seated in the dinning room. *(03 marks)*

Particles from fish diffuse into air; distribute themselves into dinning room; into the nose and are detected by receptors in the nose;

3. You must have learnt the fact that even though Chemistry is a laboratory science, it doesn't stop in the laboratory. In our everyday life, we use very many materials, with different properties. The pictures below show different materials that we use at home.

   (a) using your knowledge about using materials, suggest the type of material and from the list, write down examples of things made from that particular material. *(05 marks)*



Material	*Name of item (s) from the picture*
Glass; ✓	Beaker, ✓ glass, conical flask
Ceramics; ✓	Cup, pot; ✓ tiles
Wood; ✓	Table, ✓ Hammer handle
Metal; ✓	Hammer head, ✓ key, nails, spanners.
Plastic; ✓	Jerrycan, ✓

Any 1 material; ✓ 1 example; ✓

(b) The use of plastics in our daily life has greatly had a negative impact on our natural environment in the past years.

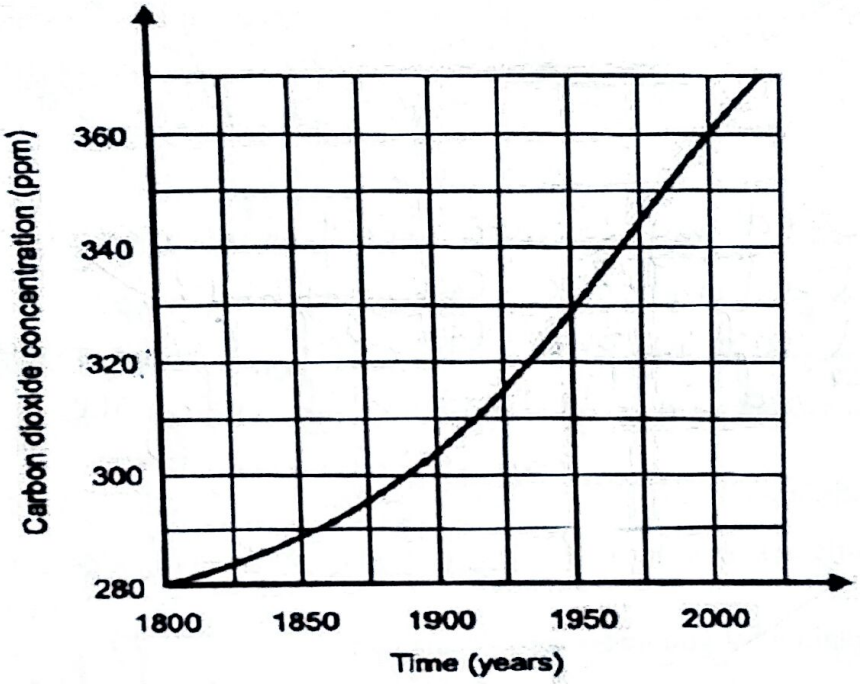
(i) Outline any two harmful effects of plastics in our environment. *02 marks)*

- Prevent entry of water into the soil; ✓
- Fumes released from burning plastics cause respiratory disorders; ✓
- Block water channels; ✓ - Block water passages

(ii) Outline three ways in which we can reduce the harmful effects of plastics in our environment. *(03 marks)*

- Recycling of plastic materials ✓
- Use of biodegradable containers as alternatives ✓
- Proper disposal of plastic wastes ✓

4. Air is a mixture of different gases, and carbon dioxide is one of them. The average composition of carbon dioxide in Air is about 0.03%. However, in the recent years, the amount of carbon dioxide in the atmosphere has greatly increased due to various human activities and this poses a great threat to human life. The graph below shows the carbon dioxide concentration in the earth's atmosphere over the past two hundred years measured in Jinja town. Study it carefully and answer the questions that follow;



(a) Calculate by how much the carbon dioxide concentration increased from the year 1800 to the year 1950. ***(02 marks)***

(330 - 280); = 50 ppm;

(b) State any **two** factors that could have contributed to the increased amounts of carbon dioxide in air between 1950 and 2000 ***(02 marks)***

- Deforestation;
- Use of fossil fuels;
- Charcoal burning;
- Industrialisation; Any 2

(c) Explain the effect that an increased carbon dioxide concentration in the air can have on the environment over a long period of time. **(03 marks)**

Acc: Persistent rise in temperature.

Leads to green house effect; / Global warming; accumulation of Carbondioxide creates a shield; that prevents high energy radiations from escaping from atmosphere; increasing ambient temp;

(d) However, much as carbon dioxide gas can have harmful effects to human life, there are also ways how carbon dioxide gas can be beneficial in human life and industry. Outline any three uses of carbon dioxide gas in our daily life. **(03 marks)**

- Used by plants for photosynthesis to make food;
- Used in fire extinguishers;
- Used in production of Carbonated drinks;
- Used in production of dry ice;

5. Shadrach, a senior two student from EDUCAN school, added some dilute hydrochloric ***acid***, little at a time, to an ***alkaline*** solution of sodium hydroxide in a conical flask.

(a) Explain what you understand by the terms;

(i) Acid. **(02 mark)**

Acc: Proton donor

Substance that ~~contains~~ produces hydrogen ions as only positively charged ions in solution

Acc: Substance turns damp blue litmus paper red/pink

(ii) Alkali. **(02 mark)**

Substance that produces hydroxyl / OH^- ions ~~as~~ in solution;

Acc: Soluble base

Acc: Reacts with acid to form salt and water only

(b) (i) Write a word equation for the reaction that occurred between hydrochloric acid and sodium hydroxide. *(02 marks)*

Hydrochloric acid + Sodium hydroxide ⟶ Sodium chloride + Water

(c) Imagine your young brother has been stung by a bee as he is playing around the compound with flowers, as a student of chemistry that has studied about acids and bases, describe a simple procedure that you would follow to give him first Aid and give reasons for the choice of your method. *(04 marks)*

Rub a paste made of baking Soda and water on the stung part to relieve the pain because baking Soda is alkaline and neutralises the acidic bee venom reducing itching and swelling then take him to a doctor.

Acc. Application of any uncorrosive alkaline substance

END

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