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MYOTA F. CB

THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL
DIPLOMA IN EDUCATION EXAMINATION

CHEMISTRY TEACHING METHODS

e: 3 Hours *Thursday 14th February 2008 p.m.*

Instructions

1. This paper consists of sections A, B and C.
2. Answer **all** questions in sections A and B and **two (2)** questions from section C.
3. Cellular phones are **not** allowed in the examination room.
4. Write your **Examination Number** on every page of your answer booklet(s).

SECTION A (36 marks)

Answer **all** questions in this section.

1. Explain briefly **four (4)** major steps of a scientific procedure as used in the teaching and learning of the Chemistry subject.

2. Give **four (4)** reasons why syllabus analysis is a crucial step for effective teaching and learning of Chemistry.

3. (a) With **two (2)** examples in each cases, describe briefly textual and non-textual curriculum materials used in the teaching and learning of the Chemistry subject.

   (b) State **one (1)** characteristic feature of textual and non-textual curriculum materials in Chemistry.

4. Write short notes on

   (a) banking method.

   (b) heuristic method as used in the teaching and learning of the Chemistry subject in secondary schools.

5. One of the important concepts to be taught in Chemistry is chemical formulae. List down **four (4)** reasons of teaching such a concept.

6. Explain how you would lead students to calculate the percentage of sodium in sodium carbonate (Na_2CO_3).

7. Mention **four (4)** uses of tests given by Chemistry teachers after covering more than one topic.

8. With examples, explain how you could lead students to develop an understanding of the concept exothermic reaction.

9. After teaching the combining powers concept of the periodic table, one student had a problem of writing the formula of calcium chloride. The student had two options of writing the formula, Ca_2Cl or $CaCl_2$. Write a step by step procedure to help such as student to determine the correct formula for calcium chloride.

SECTION B (40 marks)

Answer **both** questions in this section.

10. One of the cross-cutting issues in education is environmental pollution. As a Chemistry teacher to be; discuss air pollution highlighting clearly its meaning, causes and effects to the environment.

11. In one experiment, copper and silver electrodes were cleaned, dried and weighed, then replaced in their respective voltermeters and a current of 0.45 A was passed for 25 minutes. Thereafter the electrodes were removed cleaned, dried and reweighed. The masses of copper and silver deposited were 0.221 g and 0.755 g respectively. The entire experiment is diagrammatically represented as follows:

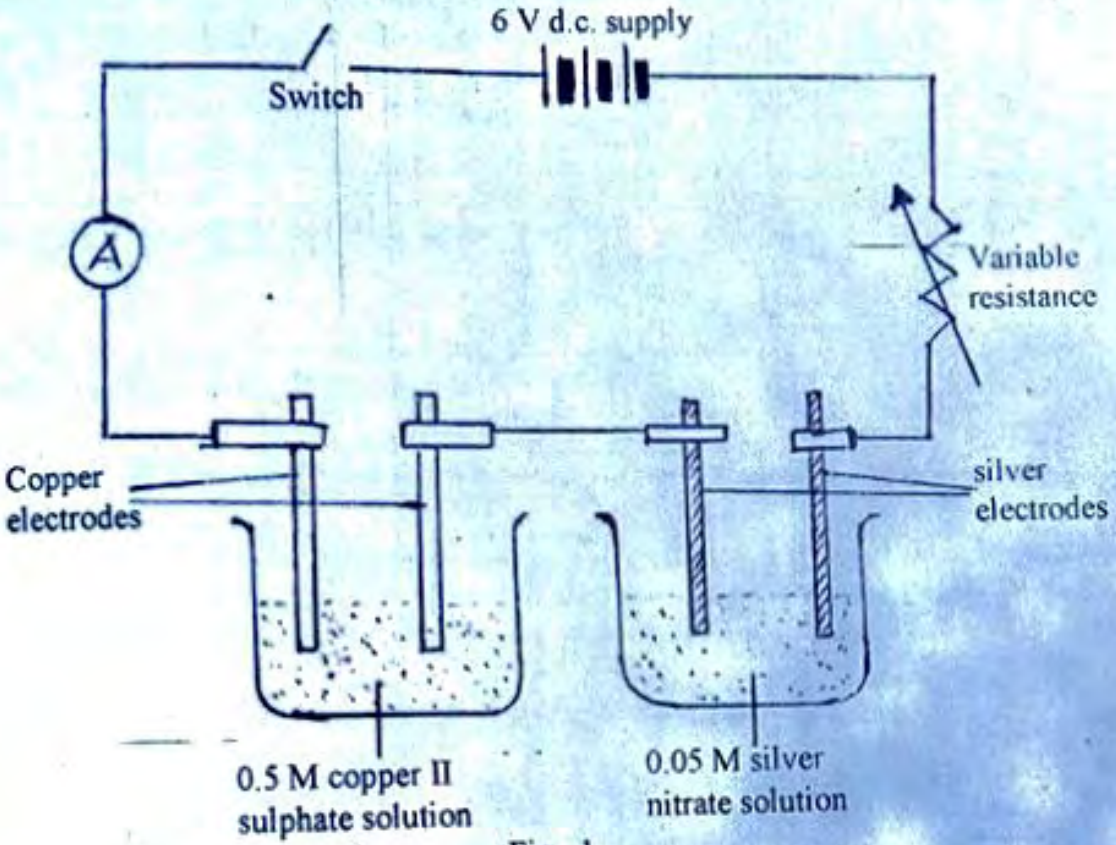

Fig. 1

(a) Calculate the quantity of electricity (Q) passed through the electrodes.

(b) Calculate the molar masses for both copper and silver.

(c) Write cathode reactions for copper and silver.

SECTION C (24 marks)

Answer **two (2)** questions from this section.

12. Write short notes on the uses of Chemistry in today's general life.

13. Mention and describe the major types of evaluation that are to be employed in the teaching and learning process of Chemistry.

14. (a) Deduce the salient features of a Chemistry lesson plan.

(b) Outline and discuss **four (4)** things to be considered by a Chemistry teacher when preparing a lesson plan.

15. Using the reaction between copper (II) sulphate and aqueous sodium hydroxide as an example, explain step by step how you could teach form II students a Chemistry sub-topic of Ionic Equations.

$CuSO_4 + NaOH$

$Cu^{2+} + SO_4^{2-} + Na^+ + OH^- \longrightarrow Na_2SO_4(s)$

$Cu^{2+} + SO_4^{2-} + 2Na^+ + 2OH^- \longrightarrow 2Na^+ + SO_4^{2-}$

$Cu^{2+} + 2OH^- \longrightarrow Cu(OH)_2$

write the equation