THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL OF TANZANIA

DIPLOMA IN TECHNICAL EDUCATION EXAMINATION

732 **CHEMISTRY TEACHING METHODS**

Time: 3 Hour. **2004 May, 12nd Monday 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. Section **A** carries **36 marks**, section **B** carries **40 marks** and section **C** carries **24 marks**.
4. Cellular phones and other unauthorized materials are **not** allowed in the examination room.
5. Write your **Examination Number** on every page of your answer booklet(s).

SECTION A (36 marks)

Answer all questions in this section.

1. Identify four (4) challenges that Chemistry teachers may face during practical lessons and briefly explain each.

2. State four (4) reasons why it is necessary to evaluate Chemistry lessons regularly in secondary schools.

3. Outline four (4) advantages of using a Chemistry laboratory for teaching instead of using an ordinary classroom.

4. Explain the meaning of the term "scheme of work" and give three (3) reasons why it is important for Chemistry teachers.

5. Define the terms:
   (a) Continuous assessment
   (b) Formative assessment
   (c) Summative assessment
   (d) Diagnostic assessment

6. Mention four (4) precautions to be observed when using flammable substances during a Chemistry experiment.

7. State four (4) characteristics of a good lesson plan in Chemistry education.

8. Explain the significance of integrating ICT (Information and Communication Technology) in the teaching and learning of Chemistry.

9. List four (4) criteria to consider when selecting a topic for classroom demonstration in Chemistry.

SECTION B (40 marks)

Answer both questions in this section.

10. As a Chemistry teacher, you are preparing to teach the topic "Separation of Mixtures" to Form One students.

    (a) Identify three (3) common separation techniques you would teach and explain briefly how each works.

    (b) State five (5) reasons why separation of mixtures is important in real life.

    (c) Outline four (4) safety measures to observe during the lesson.

    (d) Design a suitable lesson objective for each separation technique identified in (a).

11. In a titration experiment, 25.0 cm^3 of sodium hydroxide (NaOH) solution of unknown concentration was titrated against 0.100 M hydrochloric acid (HCl). The average volume of acid used was 22.5 cm^3.

    (a) Write a balanced chemical equation for the reaction.

    (b) Calculate the number of moles of HCl used.

    (c) Determine the concentration of NaOH in mol/dm^3.

    (d) Convert the concentration of NaOH to g/dm^3 (Relative Molecular Mass of NaOH = 40).

SECTION C (24 marks)

Answer two (2) questions from this section.

12. Describe the roles and responsibilities of a Chemistry teacher in ensuring laboratory safety. Provide six (6) points.

13. (a) Define the term "lesson evaluation."

    (b) Explain four (4) aspects a Chemistry teacher must reflect on when evaluating a lesson.

    (c) Discuss two (2) ways of improving lesson delivery after evaluation.

14. With the use of chemical equations and examples, differentiate between:

    (a) Endothermic and exothermic reactions

    (b) Ionic and covalent compounds

(c) Physical and chemical changes

(d) Oxidation and reduction in terms of electron transfer

15. A Chemistry teacher is planning to prepare a scheme of work for Form Three students.

(a) Describe five (5) components of a good Chemistry scheme of work.

(b) Explain the relationship between the scheme of work and the lesson plan.

(c) Outline four (4) challenges a teacher may face when preparing a Chemistry scheme of work.