

# THE UNIVERSITY OF ZAMBIA

In association with

## TECHNICAL AND VOCATIONAL TEACHERS' COLLEGE

### DEPARTMENT OF APPLIED SCIENCES

#### THIRD YEAR DEFERRED FINAL EXAMINATION

SCIENCE TEACHING METHODS

**DURATION:** THREE (3) HOURS

**MARKS:** 100

**APRIL 2021**

#### **Information and instructions to candidate**

1. Write your student identification number in the space provided on the answer booklet.
2. There are **seven (7)** questions in this paper. **Question one is Compulsory**
3. Answer question **number one** and any other **four (4)** questions of your choice.
4. The intended marks for each question or part of the question are shown in brackets. [ ]
5. Write **all** the questions you have attempted in the answer booklet provided

**Question one**

With reference to the extract from integrated science 8-9 syllabus below, write a detailed lesson plan as provided in the Ministry of General Education teaching Skills Book II.

**[20]**

TOPIC	SUB TOPIC	SPECIFIC OUTCOMES
8.3.0 The Environment	8.3.1 Water, Air and Land Pollution	8.3.1.1 Explain what pollution is. 8.3.1.2 Identify different types of pollution of the environment 8.3.1.3 Identify causes of pollution of the environment. 8.3.1.4 Describe the effects of pollution on the environment 8.3.1.5 Describe ways of preventing pollution of the environment

**Question two**

- (a) Explain why experiments should be accidents free laboratory? **[3]**
- (b) State the most common laboratory accidents in secondary schools. **[6]**
- (c) State and explain at least six safety precautions that must be considered in the science laboratory. **[6]**
- (d) State and explain any two types of fire extinguishing equipment. **[2]**

**Question three**

Discuss five common types of teaching aids used in teaching /learning of science in secondary schools in Zambia.

**[20]****Question four**

- (a) Discuss the main characteristics of an effective teacher of science. **[8]**
- (b) It is important as you prepare to teach, to be aware of the fact that learners differ in many ways. Individual differences therefore refer to the way pupils differ in learning activities.

Write brief notes on individual differences in learners listed below.

- (i) Aptitude and ability
- (ii) Knowledge, skill and attitude
- (iii) Personality and style of learning
- (iv) Age and experience

**[12]****Question five**

- (a) Briefly explain classroom management. **[2]**
- (b) Discuss five major causes of indiscipline in a classroom. **[15]**
- (c) State ways of disciplining learners in modern schools today. **[3]**

**Question six**

- (a) Define Benjamin Bloom's classification system. **[2]**
- (b) Discuss Benjamin Bloom's domains of learning. **[6]**

- (c) Classify each of the following items using the six cognitive levels of Blooms category.
- (i) Give an account of how a simple a.c. generator work
  - (ii) What is the function of the heart
  - (iii) Explain the law of inertia
  - (iv) Construct a word equation to show how food is manufacture in plants
  - (v) Design the experimental procedure on how to determine the density of an irregular object
  - (vi) Compare and contrast between boiling and evaporation
- [12]**

**Question seven**

- (a) Write short/brief notes on each of the following teaching approaches.
- (i) Discussion method **[5]**
  - (ii) Lecture method **[5]**
  - (iii) Demonstration method **[5]**
  - (iv) Field trip **[5]**

**End of Examination**