THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL

DIPLOMA IN TECHNICAL EDUCATION EXAMINATION

722 **EDUCATION**

Time: 3 Hour. **ANSWERS** **Year: 2009**

Instructions

1. This paper consists of **seven (7)** questions.
2. Answer **five (5)** questions only.
3. Each question carries **twenty (20)** marks.
4. All communication devices and any unauthorised materials are **not** allowed in the examination room
5. Write your **Examination Number** on every page of your answer booklet(s)

1. (a) What do you understand by the term pedagogy in the context of technical education?

Pedagogy in technical education refers to the art and science of teaching and instructional strategies used by educators to transfer technical knowledge and practical skills to learners. It involves structured planning, content delivery, interaction with learners, and the use of teaching methods suitable for skill-based education. In technical education, pedagogy emphasizes hands-on training, learner engagement, and competency development in real work environments.

(b) Give one difference between pedagogy and andragogy in training.

The main difference is that pedagogy focuses on teaching children or inexperienced learners who rely heavily on the teacher for guidance, while andragogy is centered on teaching adults who bring prior experiences and are more self-directed in their learning.

(c) Explain the following aspects as they apply in adult learning:

(i) **Learning motivation:** Adults are primarily motivated to learn when they see immediate relevance to their personal or professional life. Unlike children, their learning is often driven by internal factors like career growth, self-improvement, or solving real-life problems.

(ii) **Experience:** Adults bring a wealth of experience to the learning environment which influences how they absorb new knowledge. Effective trainers build on these experiences by connecting new concepts to what learners already know.

(iii) **Readiness to learn:** Adult learners are typically more prepared to learn things that help them deal with real-life situations. Their readiness is closely tied to their social roles, such as becoming a supervisor or improving performance at work.

(iv) **Orientation to learning:** Adults prefer a problem-centered approach rather than subject-centered learning. They want learning to be practical and applicable to current challenges they face in the workplace.

2. (a) Define curriculum implementation.

Curriculum implementation is the process of putting into action the planned educational program. It involves actual teaching, the use of resources, assessment of learners, and adaptation of strategies to ensure the intended learning outcomes are achieved within a specific educational setting.

(b) Identify four major barriers to effective curriculum implementation in technical institutions.

- Inadequate teaching and learning materials.

- Lack of trained and experienced instructors.
- Poor infrastructure and workshop facilities.
- Limited involvement of industry in curriculum development.

(c) Briefly explain how each barrier mentioned in (b) can be addressed.

Inadequate materials can be addressed by increasing budget allocations and seeking support from industries or donors.
Lack of trained instructors can be solved by offering regular in-service training and encouraging staff to attend professional development courses.
Poor infrastructure can be improved through institutional partnerships and government investment in workshop upgrades.
Involving industry in curriculum development ensures content is up-to-date and aligned with market needs, which increases its effectiveness and relevance.

3. (a) List five objectives of using teaching aids in the workshop environment.

- To enhance understanding by making abstract concepts more concrete.
- To capture and maintain students' attention.
- To accommodate different learning styles.
- To encourage active learning and participation.
- To improve retention and recall of technical information.

(b) Describe three types of teaching aids that are most suitable for vocational training and explain their importance.

Visual aids such as diagrams, models, and charts help students visualize machinery or processes they may not fully grasp from verbal explanation alone.
Audio-visual aids like instructional videos allow learners to observe real-life demonstrations or procedures before attempting them.
Demonstration tools and simulators are crucial in vocational training as they allow learners to practice technical tasks in a controlled and safe environment before using real machines.

4. (a) Mention four characteristics of a competent technical teacher.

- Mastery of subject matter and technical skills.
- Ability to plan and deliver engaging and practical lessons.
- Strong classroom and workshop management skills.
- Ability to assess learner performance effectively and provide constructive feedback.

(b) With examples, differentiate between formative and summative evaluation in vocational education.

Formative evaluation is continuous and done during the learning process to guide instruction. For example, giving feedback during a metal-cutting practice session.
Summative evaluation is done at the end of a learning phase to assess whether objectives have been achieved. An example is a final practical examination in a welding course.

(c) Outline four roles of assessment in the teaching-learning process.

Assessment helps identify whether learning objectives are being met.

It provides feedback to both teacher and learner for improvement.

It motivates students to engage seriously in learning.

It guides curriculum adjustment and instructional strategies based on learner needs.

5. (a) What is lesson planning?

Lesson planning is the process of outlining how a specific lesson will be taught, including objectives, content, methods, resources, and assessment strategies. It ensures the teacher is prepared and focused during instruction.

(b) Explain two advantages of preparing a lesson plan before entering a classroom.

It provides a clear guide and structure for delivering content, reducing confusion and time wastage.
It helps ensure that learning objectives are met and that all necessary content is covered within the allocated time.

(c) State and explain five important components of a standard lesson plan used in technical education.

Objectives: Statements that define what learners should achieve by the end of the lesson.

Content: The subject matter or skills to be covered in the lesson.

Methods/strategies: Instructional techniques such as demonstration or group discussion.

Resources/materials: Tools and equipment needed for the lesson like machines, charts, or handouts.

Assessment: Ways to check whether learners have understood the lesson, such as practical tasks or questions.

6. (a) Identify and describe two teaching methods commonly used in technical training.

Demonstration method involves showing learners how to perform a specific task, then allowing them to practice it.
Project-based learning is where learners complete real-life tasks or projects to build skills through practical application.

(b) What are the strengths and limitations of each method you identified in (a)?

Demonstration is effective for visual learners and ensures learners see the correct procedure. However, it may limit critical thinking if learners simply copy without understanding.
Project-based learning promotes problem-solving, creativity, and deep understanding. However, it can be time-consuming and may require extensive resources.

(c) In what situations would you apply each of those methods effectively?

Demonstration is best for introducing a new skill or technique, especially in dangerous or precise tasks.
Project-based learning is suitable for advanced learners working on integrating multiple skills, such as assembling a functional electrical circuit.

7. (a) Give one example of a value and one of an attitude that a technical teacher should promote among students.

A value: Honesty in reporting workshop results or project outcomes.
An attitude: Willingness to cooperate and work in teams during practical activities.

(b) State three differences between values and attitudes.

Values are deep-rooted beliefs that influence behavior, while attitudes are mental positions or feelings toward something.

Values are more stable and long-term; attitudes can change more easily with experience.
Values often determine a person's principles; attitudes reflect their readiness to act in specific ways.

(c) Explain four strategies you would use to promote positive values and attitudes in your students during workshop training.

Model ethical behavior consistently to serve as an example for students.

Engage students in group tasks that encourage teamwork and mutual respect.

Discuss real-life scenarios where values and attitudes impact workplace performance.

Reward and recognize students who demonstrate positive behavior such as punctuality and responsibility.