THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL

DIPLOMA IN TECHNICAL EDUCATION EXAMINATION

722 **EDUCATION**

Time: 3 Hour. **ANSWERS** **Year: 2003**

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 is meant by the term "student-centered learning"?

Student-centered learning is an approach that shifts the focus of instruction from the teacher to the learner. In this model, students are actively involved in their learning process, making decisions about how they learn, engaging in discussions, solving problems, and working on projects. The teacher acts as a facilitator rather than a sole source of knowledge. In technical education, student-centered learning allows learners to apply skills, explore tools, and build competence through experience.

(b) Explain three advantages of using student-centered learning in technical and vocational education.

One advantage is that it promotes active participation. Students become more engaged because they are responsible for their own learning, which leads to better understanding and retention of knowledge and skills.

Another benefit is the development of critical thinking and problem-solving abilities. When students are involved in hands-on projects or collaborative tasks, they must analyze situations, make decisions, and apply their knowledge to real-life scenarios.

It also encourages learner independence. By giving students more control over their learning process, they develop self-confidence and responsibility, which are essential traits in the workplace.

(c) Describe four challenges a teacher may face when implementing student-centered approaches in large technical classes.

Managing a large class size makes it difficult for the teacher to give individual attention to each learner, which may lead to uneven learning outcomes.

Resource limitations can hinder implementation. In technical education, student-centered learning often requires equipment, materials, and space that may not be available for every student.

Assessment can be challenging. With varied tasks and learning paths, the teacher may struggle to monitor and evaluate each student's progress fairly and consistently.

Maintaining classroom control is more difficult. With students working in groups or moving around for practical activities, it becomes harder to maintain discipline and order.

2. (a) Define instructional materials in technical education.

Instructional materials in technical education are physical or digital resources used by teachers to support and enhance the teaching and learning process. These materials include tools, models, machines, diagrams,

charts, manuals, videos, and software, which help learners understand theoretical concepts and develop practical skills in their field of training.

(b) Identify and explain four qualities of good instructional materials used in workshop-based teaching.

Good instructional materials must be relevant. They should be directly related to the subject matter being taught and reflect current industry practices.

They should be durable and safe for repeated use. In workshop environments, materials are exposed to wear and handling, so they need to withstand practical conditions without causing harm.

Clarity and simplicity are essential. Materials such as diagrams or manuals should be easy to understand and well-labeled to facilitate independent learning.

They should also be accessible. Good materials are available in sufficient quantity and suitable formats for all learners to use effectively during lessons.

(c) Give three reasons why some technical teachers underutilize instructional materials during teaching.

One reason is the lack of materials. Some schools have limited budgets or outdated resources, making it difficult for teachers to access or use the appropriate tools.

Teachers may lack training or confidence in using certain types of instructional media, especially digital tools or complex equipment.

Another reason is time constraints. Teachers may avoid using materials if they believe it takes too much time to prepare or set them up during short lessons.

3. (a) What is lesson observation in teacher education?

Lesson observation is a professional development process where one educator, supervisor, or colleague watches another deliver a lesson to assess their instructional skills and classroom practices. In technical teacher education, it is used to evaluate how well a teacher explains concepts, manages learners, uses instructional materials, and meets lesson objectives.

(b) State three objectives of conducting lesson observation in technical teacher training.

Lesson observation aims to improve the instructional performance of trainee teachers by providing feedback on their teaching methods and classroom management.

It helps in assessing whether teaching strategies used by the teacher align with learner needs and the subject matter.

It also supports reflective teaching by encouraging teachers to analyze and learn from their performance through the insights and feedback provided by the observer.

(c) Describe four aspects to consider when observing a technical lesson.

The observer should consider lesson organization, including whether the objectives, content, and activities are clearly defined and logically sequenced.

Classroom and workshop management must be assessed. This includes student engagement, use of time, safety procedures, and handling of tools and machines.

The use of instructional methods is also important. The observer checks whether the teacher uses appropriate strategies to support learning and participation.

Finally, the observer considers the teacher's communication and interaction with students, including clarity of instruction, questioning skills, and responsiveness to learner feedback.

4. (a) Explain the meaning of "psychomotor domain" in technical learning.

The psychomotor domain refers to the aspect of learning that involves the development of physical and manual skills. In technical education, this domain includes performing tasks such as operating tools, assembling parts, welding, or wiring circuits. It emphasizes coordination, precision, and the practical application of knowledge.

(b) Mention and explain four levels of skill development under the psychomotor domain.

The imitation level involves learners copying demonstrated actions with guidance. This is the initial stage of skill acquisition.

Manipulation follows, where learners begin to perform tasks independently but still rely on memory or instructions for accuracy.

At the precision level, learners perform tasks accurately, efficiently, and with minimal errors. Repetition and practice lead to mastery of the skill.

The articulation level occurs when learners combine multiple skills to complete complex tasks and adapt procedures to different situations with confidence and efficiency.

(c) How can a technical teacher effectively assess students in the psychomotor domain?

The teacher can use performance-based assessments, where students are required to demonstrate specific tasks under observation, such as constructing a circuit or assembling a mechanical part.

Checklists and rating scales can be used to evaluate the quality and accuracy of the performance based on predefined criteria.

The teacher can also assess through projects or portfolios, where students complete tasks over time, and their progress is documented and reviewed.

Regular observation and immediate feedback help guide improvement and ensure the learner is developing the required skills to standard.

5. (a) Define classroom discipline.

Classroom discipline refers to the strategies and practices used by a teacher to manage student behavior, maintain order, and create a positive learning environment. In technical education, discipline ensures safety, respect, and productivity, especially during workshop activities where misconduct can lead to accidents or disruptions.

(b) Identify four causes of indiscipline among students in technical institutions.

Lack of clear rules and expectations may lead students to test boundaries or behave irresponsibly.

Personal or family problems can affect a student's behavior, making them disruptive or disengaged in class.

Peer influence is another common cause. Students may act out to gain attention or acceptance from others.

Poor teaching methods and unengaging lessons can result in boredom and misbehavior as students lose interest in the subject.

(c) Explain four strategies a teacher can use to maintain discipline in the classroom and workshop.

Establishing and communicating clear rules from the beginning sets expectations and reduces misunderstandings.

Consistently enforcing rules and applying fair consequences helps maintain order and respect in the classroom.

Using engaging teaching methods that involve learners actively reduces idle time and keeps students focused.

Building positive relationships with students through encouragement, active listening, and respect helps foster a supportive environment where discipline becomes a shared responsibility.

6. (a) What is meant by "feedback" in the context of teaching and learning?

Feedback is the information provided by the teacher to the learner about their performance, progress, or understanding of a task. It serves to guide learners on how to improve, affirm correct work, or correct mistakes. In technical education, feedback is particularly important in skill development, where learners need specific guidance to refine their techniques.

(b) Mention and explain three types of feedback used by teachers.

Immediate feedback is given during or right after a task is performed. It helps learners correct mistakes in real-time and reinforces correct procedures.

Delayed feedback is provided after a period of reflection, such as during a review session. It allows learners to analyze their work before receiving guidance.

Peer feedback involves students giving constructive comments to each other based on set criteria. This promotes collaboration and self-awareness among learners.

(c) Describe four principles of giving effective feedback to technical learners.

Feedback should be specific. Vague comments like "good job" should be replaced with clear statements such as "your wiring is neat and follows the diagram correctly."

It should be timely. Giving feedback soon after a task helps learners connect the guidance to their performance and make adjustments while the experience is still fresh.

It should be constructive and encouraging. The goal is to help learners improve, not to discourage them. Positive reinforcement should be balanced with areas for improvement.

Finally, feedback should focus on performance, not personality. Comments should relate to the work done and not the individual, helping to maintain learner confidence and motivation.

7. (a) What is meant by the term "scheme of assessment"?

A scheme of assessment is a plan that outlines how a learner's performance will be evaluated over a specific course or training period. It includes the types of assessments, their weight or contribution to the

final grade, the timing of each assessment, and the competencies to be measured. It guides both teaching and learning activities in technical subjects.

(b) State and explain three components of a scheme of assessment in technical subjects.

The assessment objectives describe what learners are expected to demonstrate or achieve, such as practical skills or theoretical knowledge.

The assessment methods refer to the tools used to evaluate performance, including written tests, practical exercises, projects, or oral presentations.

The assessment schedule indicates when each assessment will be conducted and how much it will contribute to the final grade, ensuring that evaluations are spaced appropriately throughout the course.

(c) How does a well-prepared scheme of assessment improve the teaching and learning process?

It provides structure and clarity, allowing both teachers and learners to understand expectations and prepare accordingly.

It ensures that all important competencies are assessed systematically and fairly, supporting balanced instruction and meaningful evaluation.

It helps the teacher pace instruction and allocate time effectively to cover content before major assessments.

Finally, it motivates learners to stay engaged and monitor their progress throughout the course, promoting accountability and sustained effort.