THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL

DIPLOMA IN TECHNICAL EDUCATION EXAMINATION

772 **EDUCATION**

Time: 3 Hour. **ANSWERS** **Tuesday, 15 May 2007 p.m**

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) Define the term "technical pedagogy."

Technical pedagogy refers to the art and science of teaching and delivering knowledge and skills in technical and vocational education. It combines both theoretical teaching methods and hands-on practical instruction to ensure learners acquire applicable competencies in specific trades or technical fields.

(b) Explain three reasons why technical pedagogy is important in the training of technical teachers.

Technical pedagogy equips teachers with the ability to translate theoretical concepts into practical applications, which is crucial in technical subjects where hands-on experience is essential. This helps bridge the gap between classroom learning and industry practice.

It prepares teachers to handle diverse learners by using appropriate instructional techniques suited for vocational environments. This includes managing workshops, conducting demonstrations, and ensuring safety in practical settings.

It enhances curriculum delivery by aligning teaching methods with intended competencies, learning outcomes, and assessment strategies specific to technical training. This leads to more effective skill transfer and better learning outcomes.

(c) Describe four key differences between general pedagogy and technical pedagogy.

General pedagogy often focuses on abstract knowledge, while technical pedagogy emphasizes the acquisition of practical and marketable skills.

In general pedagogy, classroom-based learning is dominant, whereas technical pedagogy relies heavily on workshop-based and experiential learning environments.

General pedagogy may use theoretical assessments such as essays and tests, while technical pedagogy includes performance-based assessments like skill demonstrations and project execution.

Instructional tools in general pedagogy may involve books and whiteboards, while technical pedagogy involves tools, machines, and live demonstrations tailored to specific trades.

2. (a) What is a scheme of work?

A scheme of work is a detailed breakdown of the syllabus into manageable teaching units, arranged in a logical sequence over a specified period (e.g., a term or year). It outlines what will be taught, the teaching methods, resources to be used, and the expected outcomes for each topic within the curriculum.

(b) State four reasons why a scheme of work is important in teaching and learning.

It serves as a roadmap for the teacher by organizing the curriculum into a structured plan, ensuring that all required content is covered within the available time.

It facilitates effective time management by helping the teacher distribute topics appropriately across weeks and allocate time for revision and assessments.

It helps in monitoring teaching progress, allowing the teacher to track what has been taught and adjust future lessons accordingly.

It assists in resource planning by identifying the materials, tools, or equipment needed for each topic ahead of time, especially in technical education.

(c) Give five essential components of a scheme of work.

Week or date column indicating when a particular lesson or topic will be taught.

Topic or content column showing the specific area of the syllabus to be covered.

Specific objectives which state the intended learning outcomes for each lesson.

Teaching and learning activities outlining how the lesson will be delivered.

Teaching aids or resources listing the materials required to deliver the lesson effectively.

3. (a) What is a lesson plan?

A lesson plan is a written guide prepared by a teacher detailing how a particular lesson will be delivered. It includes objectives, materials, procedures, timing, and methods of assessment. It ensures organized and purposeful delivery of content within a single teaching session.

(b) Mention four advantages of lesson planning in technical teaching.

It ensures logical delivery of content, enabling the teacher to follow a clear sequence from introduction to conclusion.

It promotes confidence and preparedness by guiding the teacher through each stage of the lesson.

It facilitates efficient use of time and teaching aids, reducing the chances of omitting important points.

It provides a basis for evaluating the effectiveness of the lesson and making necessary improvements in future sessions.

(c) List the steps involved in developing a lesson plan.

Identifying the lesson topic and its corresponding objectives.

Selecting appropriate teaching methods and materials suitable for the lesson.

Outlining the lesson content and organizing it into a logical teaching sequence.

Planning learners' activities that will support active participation and learning.

Including methods for assessing whether learning objectives have been achieved.

4. (a) What is a demonstration method?

The demonstration method is a teaching approach where the teacher shows learners how to perform a task or procedure step-by-step while they observe. It is widely used in technical and vocational training to teach practical skills effectively.

(b) State four advantages of using demonstration method in technical education.

It allows learners to see the actual process being performed, which aids understanding and memory retention.

It is effective for introducing new skills or procedures that require physical performance or precision.

It provides a visual and practical model for learners to imitate when practicing skills.

It enables the teacher to highlight safety procedures and correct use of tools during the demonstration.

(c) List three limitations of using demonstration method.

It can be time-consuming if the group is large or the procedure is complex.

Learners may remain passive observers if not followed by hands-on practice.

It may require expensive or specialized equipment that is not always available in schools.

(d) Mention four types of teaching methods suitable in technical education.

Demonstration method for practical skill acquisition.

Discussion method for engaging learners in analysis and reflection.

Project method for applying knowledge in real-life tasks.

Field trip method for exposure to industrial settings and real work environments.

5. (a) Explain the concept of teaching aids.

Teaching aids are instructional materials or tools used by teachers to support the teaching process and enhance learners' understanding. They can be visual, audio, or tactile and are particularly important in technical education to make concepts concrete and skills demonstrable.

(b) Give five examples of teaching aids applicable in technical subjects.

Posters or charts showing diagrams of tools, machines, or processes.

Actual tools and equipment used during practical lessons.

Models or mock-ups representing mechanical systems or components.

Videos or animations demonstrating complex procedures or industrial processes.

Projectors or interactive boards for visual presentations.

(c) Describe five criteria for selecting appropriate teaching aids.

Relevance to the topic being taught – the aid must directly support the lesson objectives.

Simplicity – it should be easy to understand and not overly complex for the learners' level.

Availability and cost – it should be affordable or locally made using accessible materials.

Durability – especially for repeated use in practical environments.

Safety – particularly in technical subjects where tools and models may involve sharp or electrical components.

6. (a) What is assessment?

Assessment is the process of collecting, interpreting, and using information to evaluate the learner's progress, achievement, and performance in relation to set learning objectives. In technical education, it includes both theory and practical evaluation to measure competence.

(b) State five purposes of assessment in education.

To determine whether learners have achieved the intended learning objectives or outcomes.

To provide feedback to both learners and teachers on learning progress and areas needing improvement.

To identify learners' strengths and weaknesses for support and guidance.

To inform decisions about promotion, certification, or job readiness in technical fields.

To evaluate the effectiveness of teaching methods, curriculum content, and instructional resources.

(c) Explain four major differences between formative and summative assessment.

Formative assessment is conducted during the learning process, while summative assessment occurs at the end of a course or unit.

Formative assessment focuses on improving learning through feedback, while summative assessment evaluates overall achievement.

Formative assessment is often informal (quizzes, observations), while summative is formal (final exams, projects).

Formative assessment supports continuous improvement, whereas summative contributes to grading and certification.

(d) Mention four characteristics of a good assessment.

Validity – it measures what it is intended to measure.

Reliability – it produces consistent results over repeated trials or different assessors.

Fairness – it treats all learners equally without bias.

Clarity – the instructions and questions are clear and understandable to learners.

7. (a) Describe the concept of evaluation.

Evaluation is a broader term that refers to the systematic process of determining the effectiveness, efficiency, and relevance of a teaching program or training intervention. It involves analyzing not only learner achievement but also the quality of teaching, curriculum, materials, and learning environment.

(b) State four differences between assessment and evaluation.

Assessment focuses on learners' progress and achievements, while evaluation focuses on the overall teaching and learning process.

Assessment is often quantitative (marks, grades), while evaluation is both qualitative and quantitative.

Assessment informs day-to-day teaching decisions, while evaluation supports strategic or policy-level improvements.

Assessment is specific to learners, while evaluation can involve learners, teachers, curriculum, and the entire education system.

(c) Identify five evaluation techniques that can be used in technical training institutions.

Written tests to measure theoretical understanding.

Practical tests or performance tasks to assess hands-on skills.

Observation checklists during workshop activities.

Oral questioning to gauge understanding and verbal articulation.

Project-based evaluation where learners create or repair something over time.