THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL

DIPLOMA IN TECHNICAL EDUCATION EXAMINATION

784 **BRICKWORK AND MASONRY**

Time: 3 Hour. **17 May, 2000 a.m**

Instructions

1. This paper consists of sections **six (6)** questions.
2. Answer question number **one (1)** and any other **four (4)** questions.
3. Question 1 carries **thirty-two (32)** marks and the rest carries **seventeen (17)** marks each.
4. Non-programmable calculators may be used.
5. Communication devices and any unauthorized materials are **not** allowed in the examination room
6. Write your **Examination Number** on every page of your answer booklet.

1. (a) (i) Define the term "structural integrity" as applied in masonry construction.

   (ii) Discuss four factors that determine the structural integrity of a masonry wall.

   (iii) Explain the role of site supervision in maintaining masonry quality.

2. (a) (i) Identify five challenges commonly encountered when working with natural stones in masonry.

   (ii) Explain how each challenge can be addressed to ensure acceptable construction standards.

   (iii) Justify the continued use of stone despite these challenges.

3. (a) (i) What are construction joints in masonry walls?

   (ii) Distinguish between cold joints and day work joints.

   (iii) Analyze the impact of poorly treated joints on wall stability.

   (iv) Propose a step-by-step procedure for ensuring proper joint formation during multi-day construction.

4. (a) (i) Define the term "masonry arch."

   (ii) Explain five reasons for the historical use of arches in both structural and decorative masonry.

   (iii) Discuss three construction techniques that ensure a well-formed arch.

   (iv) Describe the importance of the centering system and how it is removed safely after arch completion.

5. (a) (i) Explain the concept of wall bonding and its relationship to crack prevention.

   (ii) Compare and contrast English bond and Flemish bond in terms of appearance, strength, and application.

   (iii) Examine three possible causes of failure in bonded walls and suggest preventive measures for each.

6. (a) (i) Outline the standard procedures for preparing mortar before blocklaying begins.

   (ii) Describe how poor mortar preparation can affect the final wall performance.

   (iii) Discuss the implications of using expired or contaminated cement in blockwork.

   (iv) Identify three best practices for mortar storage and handling on a construction site.