THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL

DIPLOMA IN TECHNICAL EDUCATION EXAMINATION

784 **BRICKWORK AND MASONRY**

Time: 3 Hour. **Wednesday 16 May 2001 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) Define the term “block bond” as used in masonry construction.

   (b) Mention three types of bonds used in block or brickwork and state where each is best applied.

   (c) Explain the importance of alternating bonding patterns in long walls.

2. You are given the task to build a boundary wall that is 30 meters long and 2.4 meters high using blocks of 400 mm × 200 mm × 200 mm.

   (i) Calculate the total number of blocks required (allow 5% for wastage).

   (ii) If each block requires 0.0035 m^3 of mortar, calculate the total volume of mortar required.

   (iii) Suggest how mortar mix can affect the quality of this boundary wall.

3. (a) Explain the function of a lintel in masonry openings.

   (b) List three materials commonly used for constructing lintels.

   (c) Describe how lintel placement is coordinated with wall construction.

4. During a site inspection, you notice white crystalline deposits on the wall surface.

   (i) Identify the phenomenon and its cause.

   (ii) Describe two methods for preventing it during construction.

   (iii) Suggest one treatment method for already affected surfaces.

5. (a) What is the purpose of a pier in long masonry walls?

   (b) Differentiate between engaged piers and detached piers.

   (c) State two effects of omitting piers in boundary wall construction.

6. A classroom wall is to be plastered on both sides. The wall measures 9 m long, 3.5 m high, and is 200 mm thick.

   (i) Calculate the total plastering area.

   (ii) If plaster thickness is 12 mm, find the plaster volume in cubic meters.

   (iii) Estimate the number of cement bags required if 1 m^3 of plaster needs 6 bags.