THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL

DIPLOMA IN TECHNICAL EDUCATION EXAMINATION

784 **BRICKWORK AND MASONRY**

Time: 3 Hour. **Wednesday, 17 May 2006 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. You are supervising the construction of a two-storey classroom block using blockwork.

   (a) List three key factors to consider before starting walling works on the first floor.

   (b) Describe two possible consequences of ignoring these factors.

   (c) How would you ensure quality and structural integrity of block walls at upper levels?

2. (a) What is a control sample in brick or block production?

   (b) Outline four laboratory tests performed on masonry units before approval.

   (c) Describe how each test relates to field performance in real construction projects.

3. During inspection, a wall shows diagonal cracking near window openings.

   (i) Suggest three likely causes of this defect.

   (ii) Propose step-by-step remedial actions.

   (iii) Recommend how future construction around openings should be handled to prevent recurrence.

4. (a) Define the term "wall tie corrosion".

   (b) List four effects of wall tie failure in cavity walls.

   (c) Explain how modern construction techniques minimize this risk.

5. A new estate is being developed in an earthquake-prone zone using unreinforced blockwork.

   (i) Identify four structural challenges that may arise.

   (ii) Explain how reinforcement can be incorporated into blockwork without altering the visual finish.

   (iii) Suggest design adaptations that improve seismic resistance in masonry buildings.

6. (a) Explain the role of movement joints in long boundary walls.

   (b) What materials are used for movement joint fillers and sealants?

   (c) Illustrate, with a labeled diagram, a vertical movement joint placed between two wall panels.