

**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.

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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.