THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL

DIPLOMA IN TECHNICAL EDUCATION EXAMINATION

784 **BRICKWORK AND MASONRY**

Time: 3 Hour. **Wednesday, 15 May 2002 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 “plumb rule” and explain its use in masonry.

   (b) List three other alignment tools used in wall construction and describe their purposes.

   (c) What are the possible effects of laying bricks without checking vertical alignment?

2. You are constructing a rectangular water tank with internal dimensions of 5 m by 3 m by 2.5 m (length × width × height).

   (i) Calculate the internal surface area to be plastered (excluding base).

   (ii) If 1 m^2 requires 1.2 kg of waterproofing compound, how many kilograms are needed in total?

   (iii) Suggest two materials used in the tank to prevent leakage and explain their functions.

3. (a) Distinguish between damp-proof course (DPC) and water-repellent admixtures.

   (b) State three common materials used for DPC in block walls.

   (c) Describe how DPC is installed during wall construction and why placement level is critical.

4. You are managing the construction of a retaining wall in sloping terrain:

   (i) Explain three site conditions that must be assessed before excavation.

   (ii) Identify two causes of retaining wall failure during construction.

   (iii) Recommend preventive solutions for each of the two causes mentioned above.

5. (a) What is a cavity wall?

   (b) List three advantages of cavity walls over solid walls.

   (c) Describe how cavity ties are used in construction and their placement guidelines.

6. A contractor plans to plaster the internal walls of a single room measuring 4 m × 3 m × 3 m high.

   (i) Calculate the total area to be plastered, excluding the floor and ceiling.

   (ii) If the plaster is applied at a thickness of 15 mm, estimate the volume of plaster required in cubic meters.

   (iii) If 1 m^3 of plaster mix requires 7 bags of cement, how many bags will be needed?