THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL
CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

071 BUILDING CONSTRUCTION

TIME: 3 Hours *Friday November 14, 2003 a.m.*

Instructions

1. This paper consists of sections A, B and C.
2. Answer **ALL** questions in sections A and B, and **TWO (2)** questions from section C.
3. Electronic calculators are **not** allowed in the examination room.
4. Cellular phones are **not** allowed in the examination room.
5. Write your Examination Number on every page of your answer booklet(s).

MAKTABA

This paper consists of 6 printed pages.

SECTION A (20 marks)

Answer **ALL** questions in this section.

1. For each of the items (i) – (x) choose the correct answer from among the given alternatives and write its letter beside the item number.

(i) The person who represents the contractor on site for running the work is the

A General foreman
B Engineer
C Architect
D Clerk of work
E Quantity surveyor

(ii) The bend of communication pipe near the water main is known as

A an elbow bend
B a Tee-bend
C an offset bend
D a U bend
E an expansion bend.

(iii) A quarter turn stair has

A a landing along a quarter shaped flight
B a landing between two flights of stair
C a single flight of stair terminated by a landing
D two flights separated by a tread and riser
E two landings connected by a single flight of stair.

(iv) The component that links the tops of the rafters on roofs is known as

A king post
B strut
C purlin
D ridge board
E wall plate

(v) A good mortar used in brickwork should satisfy certain requirements **except** the following:

A Adequate strength
B Good workability
C Retain plasticity for a short period of time
D Durable over a long period
E Bond well to the bricks.

(vi) The purpose of D.P.C in buildings is to

A stop moisture which passes through the floor, cracks and roof
B prevent cracks within the building and dry floor
C provide dry floor finish and good appearance of the building
D make sure that the anticipated strength of the building is achieved at low cost
E provide barrier to the passage of moisture from external sources into the fabric of the building.

(vii) The framework of horizontal, vertical, and inclined members to provide temporary platform for the convenience of workers on a construction site is known as

A shoring
B scaffolding
C formwork
D underpinning
E arch centre.

(viii) A slump test is used to determine the

A density of concrete
B workability of concrete
C durability of concrete
D weakness of concrete
E correct mix of concrete

(ix) which of the following is in a group of matchboarded doors?

A Fully glazed door
B Half glazed door
C Ledged, braced and battened door
D Flush door
E Panelled door.

(x) All of the following are fixing devices which penetrate wood **except**

A tower bolt
B screws
C threaded bolts
D nails
E plugs

MAKTABA

2. Match the items in List A with the responses in list B by writing the letter of the corresponding response beside the item number.

LIST A	LIST B
(i) Compression member which transfers the loads of a purlin in double roof to a suitable load bearing support	A Baluster B Pier C King post D Clay soil E The former is operated by a handle while the latter is operated by a key F Strut G Intercepting trap H Wallings I Compaction J Louvers K Balustrade L The particle constituents are closely integrated and stick together M Gully trap N Door O Segregation P Pile Q The former is operated by a key while the latter is operated by a handle R Sight rail and boning rod S An intermediate member of window frame T The wall above it collapses after sometime due to rotting
(ii) Screen used to seal an opening in a building or between rooms	
(iii) The behaviour of a cohesive soil	
(iv) The effect of transporting concrete at long distances or placing them at great heights	
(v) A trap provided at the point where the house drain joins into the public sewer	
(vi) Wood lintel is not preferred for use nowadays because	
(vii) A freestanding column of brickwork	
(viii) To prevent people falling off a stair and to increase stability of the stair	
(ix) The major difference between a lock and a latch	
(x) The horizontal timber members that support polings	

SECTION B: (40 marks)

Answer ALL questions in this section.

3. Show by means of sketches the following types of roofs:
   (a) A couple roof
   (b) A lean to roof.
4. List four functions of hardcore.
5. (a) Define "a building line"
   (b) Explain two ways in which excessive construction works can be avoided/minimised.

6. What are the roles of the following people in the construction work?

   (a) Client

   (b) Structural Engineer

7. (a) What is the function of "damp proof course" in buildings?

   (b) What is DPM?

8. What are the objects of fireplace design?

9. (a) When is concrete said to be workable?

   (b) What is the function of water in concrete?

10. Define the following:

   (a) A stair

   (b) A ramp

   (c) A going of flight

   (d) A straight flight stair

11. Explain how door frames are fixed in position on the walls.

12. Differentiate between soakaway pits and cesspits.

SECTION C (40 marks)

Answer **TWO (2)** questions from this section.

13. (a) What is

   (i) setting out of foundation?

   (ii) excavation?

   (b) Draw a typical sketch of a profile board in position and label

   (i) trench width

   (ii) foundation wall thickness

   (iii) main wall thickness.

   (c) For what purpose are the egg shaped sewers tapered at the bottom?

   (d) A joiner fixed a casement window to open inwards but when the building inspector visited the site, he ordered to change it in order to open outwards. Write down two reasons for the change.

14. (a) (i) Define "chimney stack".

(ii) What is the greatest problem of chimney stacks?

(b) When is each of the following fittings used in the arrangement of drainage as it collects water from roofs through rainwater down pipes?

(i) Rain water shoe

(ii) Back inlet gully.

(c) With the help of sketches, show how the following positions of inspection chambers are differentiated.

(i) At the change of direction of the drain

(ii) At the change of gradient of the drain

15. (a) Define the following:

(i) Flight

(ii) Landing

(b) With the help of sketches, show the different methods of jointing risers to treads and alternative nosings.

(c) With the aid of a sketch, explain the construction of winders in a staircase.