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

071 BUILDING CONSTRUCTION

Time: 3 Hours **14 November 2002 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. Cellular phones are not allowed in the examination room.
4. Electronic calculators are not allowed in the examination room.
5. Write your Examination Number on every page of your answer booklet(s).

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) Bearing capacity of soil means

A the load to a subsoil at a point near the ground
B the load to a subsoil some distance below the ground floor
C the load that the soil can safely carry with appreciable settlement
D deformation of soil due to imposed loads
E the force to be resisted by a foundation.

(ii) Sleeper walls are constructed with open spaces (honey combed) between the bricks with the aim of

A becoming quicker to build
B allowing air to circulate under the floor
C reducing the cost of bricks
D giving a good appearance
E allowing people to pass through.

(iii) The cement commonly used in ordinary works is

A rapid hardening portland cement
B high alumina cement
C white and coloured cement
D ordinary portland cement
E extra rapid hardening portland cement.

(iv) A chimney is defined as

A a shaft projecting above the roof to carry off the smoke and gases from the fire place
B passage for conveying the discharge of an appliance
C brickwork surrounding the passage from the appliance to convey the gases
D a tall breast standing chimney
E a structure supporting the construction hearth.

(v) A wall which separates two dwellings is called

A separating wall
B fender wall
C partition wall

D party wall

E serpentine wall

(vi) The main functions of windows are to

A admit daylight and ventilation

B allow people to pass through

C admit people, daylight and ventilation

D weatherproof buildings and admittance of people and their goods

E allow wind escaping from it

(vii) A communication pipe is

A that pipe used for communication between the water main and owner

B part of service pipe between company's main and boundary stop cock

C pipe connected at the point where a storage tank is installed

D part of service pipe between boundary stop cock and point of draw off in the building

E pipe obtaining water from a storage tank.

(viii) The following are the operations in the construction of a short bored piled foundation **except**

A site clearance

B boring the holes for piles

C forming the shuttering for the reinforced concrete beams or excavating the trenches to serve as shuttering

D casting the piles

E casting the beams

(ix) The traditional method of providing heating in domestic buildings is

A the open convectors

B the open fireplaces

C the room heaters

D the back boiler

E independent boilers.

(x) The following are the functional requirements of a floor except

A durability

B exclusion of wind and rain

C strength

D fire resistance

E transmission of sound

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

LIST A

(i) The workability of concrete

(ii) The total load of a building and the nature of the bearing capacity of the subsoil

(iii) Made up ground is unsuitable for foundation of a building

(iv) A material used to reduce the consistency of paint

(v) Actual means of ascending or descending from one level to another

(vi) Common rafter

(vii) A structural member used to receive the load from beams and transmit it to the foundation

(viii) The process of preventing twisting or buckling of floor joists

(ix) The term used to describe the hardware used in construction

(x) The method of preventing foul gases from the drain entering a building

LIST B

A Provision of traps

B Thinners

C Individual wedge shaped bricks in an arch

D Walls constructed to enclose the concrete and hardcore of a ground floor hearth of a fireplace

E Stain

F The ease at which concrete can be worked (transporting, placing and compacting)

G The factors on which the choice of type of foundation depend

H Has low bearing capacity to its nature

I Gives a good thermal insulation, keeps the building warm in winter and cool in summer

J As hip rafter but forming an internal angle

K The nature of the ground

L Main load bearing member of a roof spanning between wall plate and ridge piece

M A wall constructed to enclose space

N A column

O Provision of barrier to passage of moisture into the building

P Strutting

Q Iron mongery

R Kerosine

S Non-return valve

T Newel post

SECTION B (40 Marks)

Answer **ALL** questions in this section.

3. State four functional requirements of walls.

4. (a) What is concrete?

   (b) Why is concrete reinforced?

5. State two functions of fireback.

6. (a) Why is it necessary to provide openings in building walls?

   (b) What is a threshold?

7. State two aims of carrying out site exploration or investigation.

8. What is the difference between a manhole and an inspection chamber?

9. State four types of shallow foundations commonly used in our country.

10. List down four factors on which the type of floor finish depends.

11. State two advantages of applying paints to wall surfaces.

12. Define the following terms:

   (a) A communication pipe.

   (b) A supply pipe.

SECTION C (40 Marks)

Answer **TWO** questions from this section.

13. (a) Define paint.

   (b) Explain briefly the following:

      (i) Priming paints.

      (ii) Undercoat paints.

   (c) Why is clay for making bricks weathered?

   (d) Differentiate between a drain and a private sewer.

14. (a) List down four functions of roofs.

   (b) State disadvantages of timber flat roofs.

   (c) Describe briefly how to lay a floor screed on a concrete floor to form a jointless floor finish.

   (d) State two methods of ensuring safety when working in trenches.

15. (a) Define the following terms:

(i) Intrados

(ii) Voussoirs

(iii) Axed arches

(b) Differentiate between shoring and underpinning.

(c) State four advantages that reinforced concrete stairs have over other types of stairs.

(d) Sketch a butt hinge.