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

071

BUILDING CONSTRUCTION
(For Both School and Private Candidates)

TIME: 3 Hours **2006/10/20 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 5 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) Fireplace recess for class 1 appliances shall have a constructional hearth of thickness of not
- A less than 65 mm
- B more than 80 mm
- C less than 100 mm
- D more than 120 mm
- E less than 125 mm.

(ii) Which of the following is in the group of match boarded (or battened) doors?
- A Panelled doors
- B Fully glazed doors
- C Flush doors
- D Ledged braced and battened doors
- E Half glazed doors.

(iii) An inclined surface for foot or vehicular traffic used in buildings where steps would be dangerous is known as
- A ramp
- B balustrade
- C handrail
- D nosing
- E stair.

(iv) Slump test is used to measure
- A segregation of concrete
- B bulking of concrete
- C amount of water in concrete
- D workability of concrete
- E quality of concrete.

(v) In most of construction sites, the actual setting out of buildings is carried out by the
- A contractor
- B trench excavator
- C clerk of works
- D general foreman
- E surveyor.

(vi) The spacing of floor joists in timber upper floor depends on
- A size of joists
- B span of room where the floor is being constructed
- C the type of end support
- D both A and B are correct
- E both A and C are correct.

(vii) The main reinforcement bars in a concrete beam are placed at the
- A top of the beam to resist compressive stresses
- B bottom of the beam to resist tensile stresses
- C centre of the beam to resist both the tensile and the compressive stresses
- D top of the beam to resist the tensile stresses
- E top and bottom of beam to prevent both buckling and shear.

(viii) The wall separating adjoining buildings belonging to different owners is known as
A party wall
B partition wall
C fender wall
D serpentine wall
E curtain wall

(ix) The type of foundation suitably used in areas where the soil is very weak like on made up grounds or grounds that is liable to subsidence is
A pad foundation
B deep strip foundation
C wide strip foundation
D stepped foundation
E raft foundation

(x) The type of valve fitted in storage tanks jo control automatically the flow of water into the tank is
A screw down stopcock
B ball valve
C bib tap
D ferrule valve
E full way gate valve

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 application of paints on surfaces of elements.
(ii) The separate system of drainage
(iii) Horizontal timber boards that support polings.
(iv) A large horizontal straight piece of timber, concrete or metal that forms one of the main structural member of a building.
(v) A wooden piece provided after the fender wall.
(vi) An increase of water in a concrete mix.
(vii) Jo order to obtain slope or fall in timber flat roof.
(viii) The reason of removing top vegetable soil to a depth of 150 mm prior to construction.
(ix) A membrane layer whose purpose is to prevent dampness entering the building through concrete floor slab.
(x) Balustrading.

List B

A Wall rendering
B Provides both visual and practical safety barrier to the side of the stair
C Jamb
D Newel post
E Walling
F Damp proof course
G To obtain a level surface where the building is to be constructed
H Trimming joist
I Provides a protective coating, which increases the durability to the surface it has been applied

J The soil and waste matter from building discharge through one common pipe whereas surface/rain water discharges through a separate pipe.
K The joists are laid spanning across the shorter span
L Damp proof membrane
M Column
N Improve workability
O Strut
P Firing piece is laid over the bridging joists
Q Beam
R Trimmer
S It contains decayed vegetation matter, which can damage the building
T The soil matter from soil fitments discharge through one common pipe while the waste matter from waste fitments discharge through a separate pipe

SECTION B (40 marks)
Answer **all** questions in this section.

3. List **four (4)** qualities of good mortar.

4. Differentiate between safe bearing capacity and ultimate bearing capacity of soil.

5. Sketch a collar roof.

6. (a) At what particular place is an ash pit constructed in fireplaces?
(b) List **two (2)** products of combustion when the fuel burns in a fireplace.

7. Explain very briefly the difference between
(a) a single Flemish bond and a double Flemish bond
(b) an English garden wall bond and a Flemish wall garden bond.

8. What are piers?

9. (a) Define a scaffold.
(b) Differentiate between Bricklayer's scaffold and a Mason's scaffold.

10. What are traps and why are they provided in drainage works?

11. State **two (2)** purposes of providing landings on stairs.

12. Sketch a raised timber ground floor and label any **two (2)** parts.

SECTION C (40 marks)
Answer two (2) questions from this section.

13. (a) State the functions of ground floors.

(b) Explain the reasons for filling the space at the base of cavity wall with weak concrete.

(c) What are copings and what do they serve in walls?

(d) Draw a labelled section through a window sill with bottom rail when the window opens outwards.

14. (a) Explain how to:

(i) apply cement-sand plaster to walls.
(ii) fix glass to window frames using putty.

(b) What is the purpose of D.P.C. in buildings?

(c) Draw a tee (or garnet) hinge.

15. (a) What is means by the following terms and where are they used?

(i) Shoring
(ii) Centering
(iii) Formwork
(iv) Timbering to trenches

(b) Explain the difference between separate and combined drainage systems.