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 **Tuesday, 19th October 2010 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. 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).

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) A client is
- A the person engaged to prepare bills of quantities
- B an agent engaged to design advice and ensure quality
- C the person or a committee that commissions the work
- D the person who carries out the constructional works
- E the person or committee that orders building materials.

(ii) The method of applying timber preservative that attains the deepest penetration is:
- A Spraying
- B Dipping
- C Pressure impregination
- D Natural
- E Brushing.

(iii) The suitable recommended size of board for making a profile board is
- A 25 mm x 150 mm
- B 38 mm x 150 mm
- C 50 mm x 150 mm
- D 38 mm x 175 mm
- E 50 mm x 175 mm

(iv) A scaffold whose some members bear on a wall for support is called
- A trestle scaffold
- B independent scaffold
- C dependent scaffold
- D tubular scaffold
- E ladder.

(v) The suitable type of pitched roof for spans of 6 m to 9 m is
- A couple roof
- B collar tie roof
- C couple close roof
- D king-post truss roof
- E collar roof.

(vi) For a comfortable ascent of stairway, the number of steps in a flight should be restricted to a maximum of
- A 16 steps
- B 15 steps
- C 14 steps
- D 13 steps
- E 12 steps.

(vii) Coach screws are used mainly for
A shaped screw driver
B fittings of materials which are too thin to be counter sunk
C good quality fixtures
D a flush finish
E heavy carpentry work.

(viii) A water pipe which is directly subjected to pressure from a main pipe is called
A service pipe
B communication pipe
C distribution pipe
D cistern pipe
E main pipe.

(ix) The space behind a fireback should be filled with
A a clay soil
B a normal soil
C loose bricks or non- combustible materials
D a light weight concrete
E a dense concrete.

(x) The shores which provide a clear working space under the shoring are known as
A racking shores
B dead shores
C putlog shores
D flying shores
E trestle shores.

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

List A		List B	
(i)	The structural engineer's representative on site for large contracts.	A	Clerk of works
(ii)	The composition of water, sand, stones and cement.	B	Site agent
(iii)	Building term used to express the operations of leveling the sloping site before commencing the actual building works.	C	Gravel
(iv)	Pad foundations.	D	Concrete
(v)	The roof slope or inclination to the horizontal.	E	Reducing level
(vi)	The purpose for construction of windows.	F	Datum level
(vii)	One of the applications of shoring.	G	Deep foundations
(viii)	A fixed reference point for all levels in the building.	H	Shallow foundations
(ix)	Two methods of which concrete can be mixed or batched during construction on site.	I	Hip
(x)	English garden wall bond.	J	Pitch
		K	Light and accessibility into the building.
		L	Ventilation and light in the structure
		M	Contractor
		N	Provides temporary support to walls which shows sign of failure.
		O	A 'beacon"
		P	A "datum'
		Q	By volume and by mass.
		R	By volume and by weight.
		S	Used on a one and half brick (1 ½) walls for added strength, suitable for retaining walls.
		T	Consists of three courses of stretchers to one course of headers.

SECTION B (40 Marks)

Answer **all** questions in this section.

3. Mention four (4) duties of a quantity surveyor.

4. List four (4) basic requirements of a mortar suitable for brick and stone works.

5. Elaborate four (4) methods which are generally adopted to improve the bearing capacity of soils.

6. Mention four (4) types of pointing finishes on brick walls.

7. Outline eight (8) principles to be observed during the construction of brick masonry work.

8. Name four (4) suitable materials for damp-proof membrane.

9. State four (4) functional requirements of a roof.

10. Sketch a framed, ledged, braced and battened door and label four (4) basic members.

11. State two (2) basic requirements of openings for ventilation in the room.

12. Explain briefly the location of stairs in the following structures:
    (a) Public buildings
    (b) Residential buildings

SECTION C (40 Marks)

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

13. (a) What are the three (3) operations for preparing site works and setting out the building?

    (b) Find the moisture content of a timber 25 mm thick x 3000 mm long weighing 120 g before being seasoned and 90 g after it has been dried.

    (c) Mention six (6) main constituents of an oil paint.

    (d) State briefly the data required to determine the total load of a building.

14. (a) Outline the forces that a boundary wall is required to withstand.

    (b) State four (4) basic requirements of any material specified for use as reinforcement to concrete.

    (c) Define the following terms:
        (i) Common joist
        (ii) Trimming joist
        (iii) Trimmer joist

15. (a) Mention two (2) functions of roofing felts.

(b) Describe "firring pieces" as applied to flat roofs construction.

(c) List two (2) functions of a door sill.

(d) Draw a neat sketch of timber stair and show the following arts:
(i) Newel post
(ii) Balusters
(iii) Hand rail
(iv) Outer string
(v) Nosing