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

072 **ARCHITECTURAL DRAUGHTING**
(For Both School and Private Candidates)

Time: 3 Hours **Friday, 12th October 2012 p.m.**

Instructions

1. This paper consists of sections A, B and C.
2. Answer **all** the questions in sections A and B, and **two (2)** questions from section C.
3. Drawings should be in pencil and all drawings in section C should be prepared in **A3 standard paper** format.
4. Calculators are **not** allowed in the examination room.
5. Cellular phones are **not** allowed in the examination room.
6. Write your **Examination Number** on every page of your answer booklet(s).

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 dimensions of drawing paper size A3 is
A 210 x 297 B 841 x 1189 C 420 x 297 D 594 x 841 E 594 x 420.

(ii) A stringer is a long timber or metal
A bearer used to supporting and connecting steps
B running along the slope supporting steps
C projecting beyond the face of the riser
D rising vertically between two successive tread faces
E enclosing the landing

(iii) Which of the following is a function of window sill?
A To exclude rain water from the wall.
B To prevent moisture penetrating into the building.
C To support the load of structure above it.
D To prevent rain water through the window.
E To allow for ventilation and lighting.

(iv) In electrical installation plans, the symbol "∞" represents
A a fuse box B an exhaust fan C a ceiling fan
D a meter box E batten lamp holder

(v) The aim of lettering in a drawing is to
A systematically label different parts of a drawing
B write serially the dimensions on a drawing
C indicate the materials required on drawings
D provide information which can not otherwise be shown by the lines
E avoid drawing too many elevations.

(vi) The type of roof finish shown in this figure is known as

A close couple roof
B couple close roof
C collar roof
D gable roof
E hipped roof

(vii) The veranda of a building is defined as
A the entrance hall provided on residential houses
B the covered outdoor space for sitting or working
C a room provided at the entrance for resting
D a room provided for guests to rest
E a room provided at outdoor space for sitting.

(viii) A perspective drawing refers to
A axonometric projection
B isometric projection
C first angle projection
D pictorial projection
E orthographic projection.

(ix) The first step in drawing perspective drawings is to draw
A the plan of the block
B the side elevation of the block
C perspective lines
D a parallel line to side of the block
E a plumb line to side of the block.

(x) Pastel is used in architectural draughting so as to
A give more decoration
B apply soft tones for rendering
C provide extra copies of drawings
D provide coloured tracing
E transfer in transparent papers.

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)	Shows the section of the full size of a plan.	A. Construction lines
(ii)	Indicates equal parts of the object.	B. Dimension lines
(iii)	Enlarges the size of the object.	C. Long-break lines
(iv)	Shows the boundary of the object.	D. Centre lines
(v)	Used to show the boundaries of lettering.	E. Extension lines
(vi)	Highlights the hidden part of the object.	F. Cutting plane lines
(vii)	Used to point-out specific measurements on the drawing.	G. Continuous lines
(viii)	Illustrates the measurements on the drawing.	H. Border lines
(ix)	Highlights the initial tracing of the drawing development.	I. Object lines
(x)	Indicates details of the interested part of the plan.	J. Guide lines
		K. Dashed lines
		L. Leader lines
		M. Dotted lines
		N. Short lines
		O. Asymmetrical lines

SECTION B (40 Marks)

Answer **all** questions in this section.

3. Make layout-plan sketches for each of the following types of staircases:
(a) Half turn
(b) Quarter turn with winders

4. Define the following architectural drawings:
(a) Foundation plan
(b) Site plan
(c) Floor plan
(d) Roof plan

5. (a) What is the importance of having a 'checklist' when planning a residential house?
   (b) Prepare a checklist for the 'occupants' in planning a residential house.

6. Make sketches for longitudinal and transversal sections through a skeleton core flush door and show the construction members.

7. Differentiate how the two systems work; central hot water supply and the local hot water supply.

8. (a) What are engineering specifications?
   (b) Differentiate between general specifications and detailed specifications.

9. State four basic requirements for safe use of 'foul water drainage system'.

10. Explain two methods commonly used for storing architectural drawings.

11. Draw a cross section of a reinforced-column foundation and show the arrangement of reinforcements.

12. (a) Sketch the conventional symbols for the following building materials sections:
    (i) Sawn timber
    (ii) Brick wall

    (b) What is a door schedule in architectural drawings? Prepare an example of a door schedule.

SECTION C (40 Marks)

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

13. Draw a detailed labeled sketch of a section through the fire place opening constructed on the solid concrete floor, and then explain the functions of its six main parts.

14. (a) To a scale of 1:10; draw a section through a strip foundation given the depth of foundation wall below ground level as 600 mm, concrete bed below the foundation being 150 mm thick and the foundation wall thickness being 215 mm.

    (b) Make a detailed sketch of section through a glazed casement window opening outside and show the following:
    (i) Lintel
    (ii) Window frame
    (iii) Window casement
    (iv) Weathered surface of concrete window sill
    Note: Any other assumptions made should clearly be shown on the drawing.

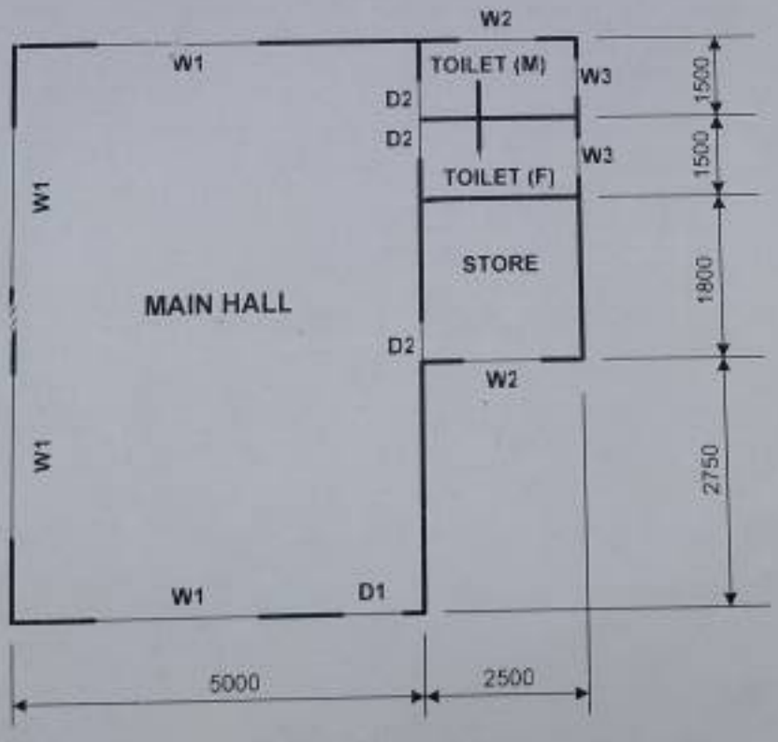
15. To a scale of 1:50; draw the front elevation of a small recreational club presented in a single line plan in Figure 1 with the following information:
    (a) Level of plinth above the ground = 450 mm.
    (b) The headroom is 3.0 m for the main hall and 2.50 m for the toilet and store.

(c) Four hardwood paneled doors:
(i) D_1 = 2.10 m x 1.10 m which is hung 300 mm from the wall.
(ii) D_2 = 2.00 m x 0.80 m flashing to the corner.

(d) Eight casement windows (glazed):
(i) W_1 =Height (1.20 m), width (1.00 m) and window sill located 0.9 m above the plinth level.
(ii) W_2 =Height (0.8 m) and width (0.75 m) and window sill located 1.5 m above the plinth level.
(iii) W_3 =Height (0.8 m) and width (0.45 m) and window sill located 1.5 m above the plinth level.

(e) Roofing being reinforced concrete slab:
(i) 150 mm thick to the main hall and100 mm thick over others.
(ii) The overhang all over the structure is 450mm.

(f) Thickness of all walls is 230 mm.



FLOOR PLAN (Not to scale)
All dimensions are in millimetres

Figure 1