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, 07th November 2014 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 and Cellular phones are **not** allowed in the examination room.
5. 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 in the answer booklet provided.

(i) Which term is referred to the method applied in describing and giving information concerning the drawing produced?
A Detailing B Lettering C Printing
D Plotting E Scheduling.

(ii) The overall building dimension, plot dimension position and size of walks and drives, and compass orientation is found on
A survey plan B landscape plan C site plan
D elevation E section.

(iii) Which instrument is used to transfer dimensions in the drawing?
A Rule B Compass C Beam compass
D Caliper E Divider.

(iv) The system in which the supply pipe carry fresh water from the source and later the disposer pipes to the disposal area is known as
A water supply system B drainage system C storm water system
D plumbing system E foul water system.

(v) During drawing the floor plan, the lines used to locate windows and doors are named as:
A Location lines B Hidden lines C Centre lines
D Object lines E Fixture lines.

(vi) What is done before pouring footing in the foundation construction?
A Soil test B Trenching C Concrete test
D Load test E Excavation.

(vii) Which one is the advantage of the plain flush door?
A Easy to fix hinges. B Easy to fix locks.
C Easy to paint the edges. D Easy to clean and decorate.
E Easy to open and shut it.

(viii) What is the behavior of a projector when the view in perspective drawing is on the fixed place?
A Radiate from two points. B Radiate from the three points.
C Radiate parallel to the view. D Radiate equidistantly.
E Radiate from single point.

(ix) The authorized institution under the law responsible for ensuring that all planning and constructions are in accordance to building regulations is known as

A Tanzania Building Agency
B Ministry of land
C Board of contractors
D Local authority
E Engineers' registration board.

(x) In sign writing each letter has different profile and width; the spacing of characters within each word depends on

A visual measurement
B technical measurement
C mechanical measurement
D audio measurement
E automatic measurements.

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

List A		List B
(i)	The floor area at the top of the flight of stairs in the residential house.	A Patio B Corridor
(ii)	A big space open to sky enclosed with rooms of the residential house.	C Court yard D Terrace
(iii)	A small quiet place that is sheltered or separated from other spaces, usually used for breakfast.	E Closet F Deck
(iv)	An entrance hall used as a transitional space to other spaces in the residential house.	G Parlour H Nook
(v)	Platform built on the upstairs outside wall of the residential house enclosed with walls or rails.	I Garden J Foyer
(vi)	Hard flat area, usually behind a residential house where people can sit.	K Balcony L Lobby
(vii)	A wooden floor that is built outside a residential house where people can sit and relax.	M Canopy N Landing
(viii)	A flat hard area outside a residential house upstairs where people can sit and enjoy.	O Porch
(ix)	A small area at the entrance of a residential house covered by a roof and often enclosed by walls.	
(x)	A large space inside the entrance of a building used as a waiting space.	

SECTION B (40 Marks)

Answer **all** questions in this section.

3. Outline four information obtained from the exercise of site reconnaissance.

4. Explain two types of settlements of a foundation.

5. By using a simple and neat sketch, show the parts of boxed cornice as listed below:
   (a) Soffit board
   (b) Ceiling board
   (c) Fascia board
   (d) Wall plate.

6. Briefly explain the application of dead shores in construction of buildings.

7. With the aid of a neat sketch, briefly explain the basic terms used in the bricks semi-circular arches.

8. Explain four rules to be observed when designing a door in the residential building.

9. With the aid of a neat sketch of a solid ground floor, show how the Damp Proof Membrane (D.P.M) laid below the concrete is arranged with Damp Proof Course (D.P.C).

10. Explain the requirements of a good stair by considering the following:
    (a) Width of the stair
    (b) Length of a flight.

11. Draw neat sketches to show methods of obtaining fall in a timber flat roof using:
    (a) Joists cut to falls
    (b) Joists laid to falls.

12. Outline the sequence on how direct hot water supply system works in the residential building.

SECTION C (40 Marks)

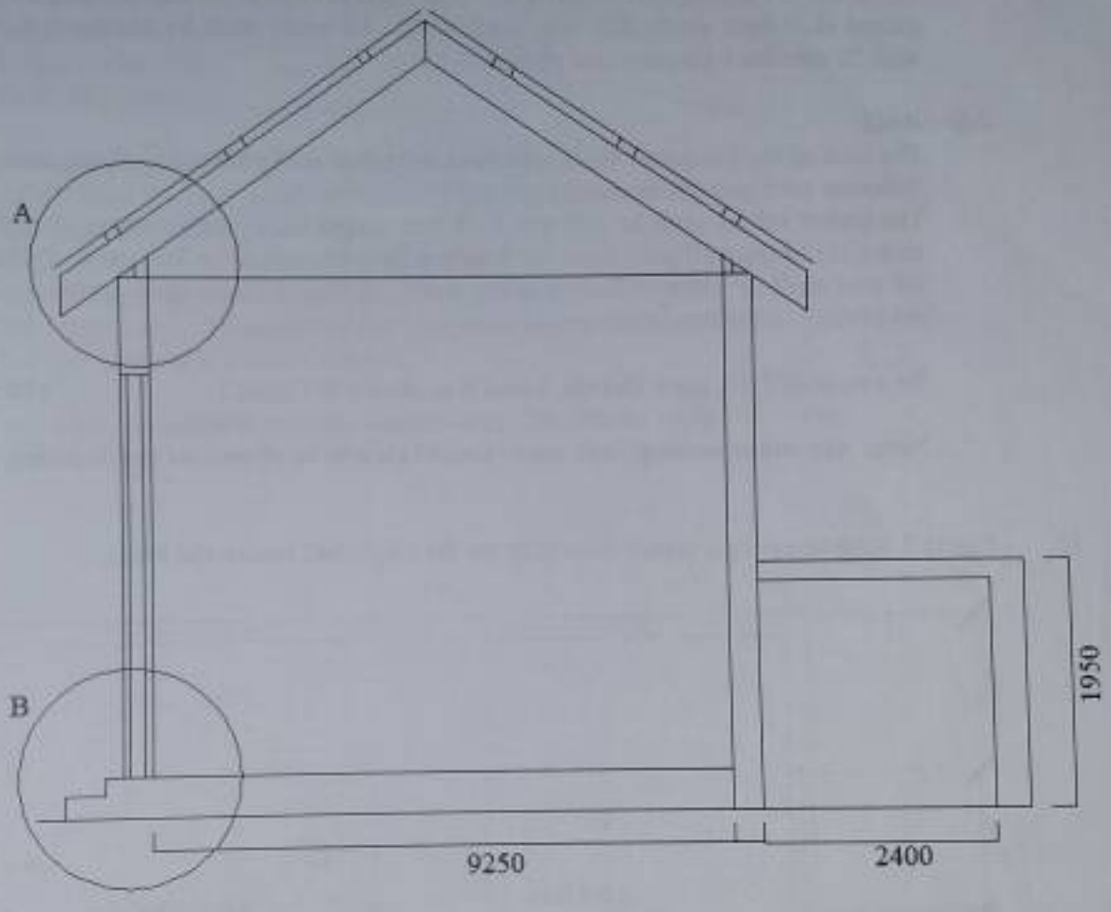
Answer **two (2)** questions from this section.

13. (a) Give four importance of site plan in building construction process. **(04 marks)**
    (b) Given the high density plot of size (20 m x 30 m) located in Mtwara municipality with the following details:
        (i) The (8 m x 12 m) rectangular residential building built along the plot at 7 metres from the edge of the street access road;
        (ii) The access road is 7 m wide located South-Eastern of the plot;
        (iii) The exterior walls of the building is set at 7 m from one of the side boundaries of the plot;
        (iv) The main entrance is along the width of the building;

        Using scale 1:500, draw the labeled plot plan enclosed with property line. **(13 marks)**

    (c) Name the three areas forming the plot area. **(03 marks)**

14. Figure 1 shows a sketch section through a small bungalow attached to a garage.



All dimensions are in mm.

Figure 1

The specifications for the bungalow are as given below:

(a) **Foundation**
690 mm wide and 230 mm thick cement concrete strip foundation laid over 50 mm thick screed. Depth of foundation is 900 mm from the ground level down to the underside of the screed.

(b) **Floor**
The floor shall consist of 150 mm thick finished oversite concrete slab laid over 200 mm hardcore. The floor is finished with 25 mm thick screed. The finished floor level shall be 450 mm above an average ground level.

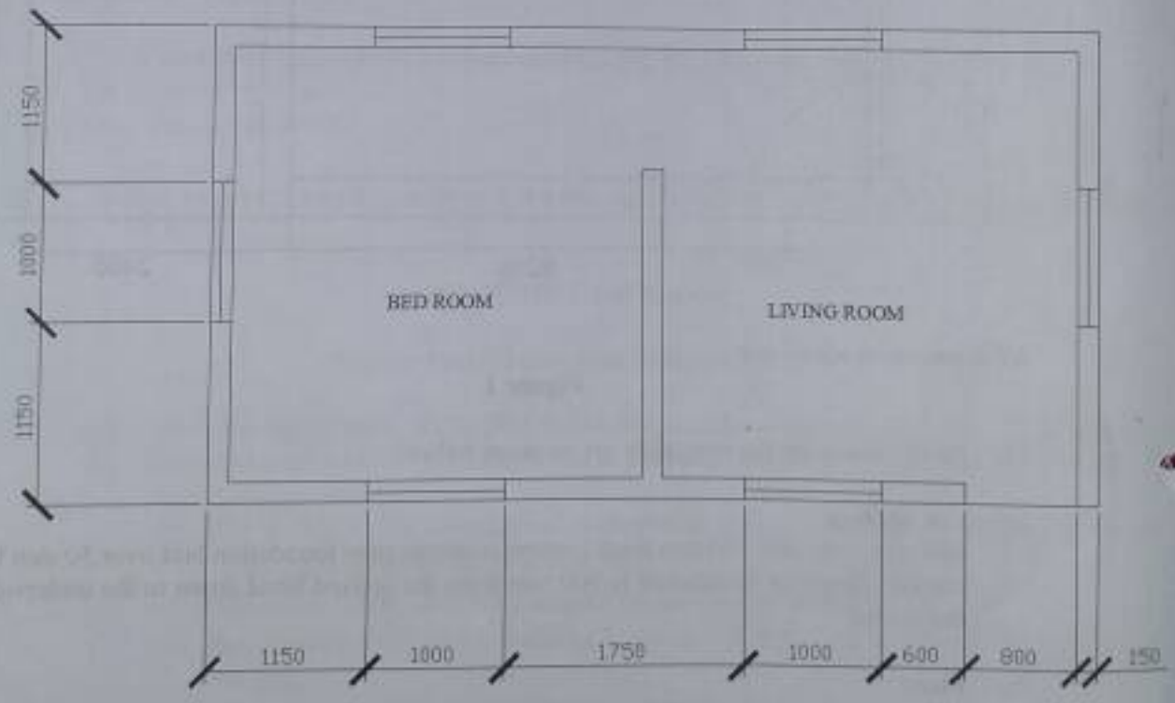
(c) **Walls**
The walls of the bungalow shall be 275 mm thick of cavity construction while that of the garage shall be a single 225 mm brick wall. All walls shall be plastered from inside with 20 mm thick cement-sand plaster.

(d) **Roof**
The roof of the bungalow shall be a double pitched roof with a 25^{0} slope, covered with Asbestos corrugated iron sheets.
The timber rafters shall be 200 mm x 75 mm placed at 900 mm centres. Height of the underside of the wall plate from the finished floor level shall be 3600 mm. Projection of the roof shall be 750 mm from external walls. A timber fascia shall run throughout the peripherals of the bungalow.

To a scale of 1:10; draw **Details A** and **B** as shown in Figure 1. **(20 marks)**

Note: Any other assumptions made should clearly be shown on the drawing.

15. Figure 2 is representing a sketch floor plan for the single bed residential house.



All dimensions are in mm.

Figure 2

Re-draw the given floor plan into scale 1:100 and hence project:

(a) Front elevation
(b) Right end elevation
(c) Left end elevation
(d) Rear elevation.

(20 marks)

The following information is given to facilitate your projections:

(i) Height from the floor level to bottom of the window is 900 mm.
(ii) All windows are 1500 mm high.
(iii) The lintel is 150 x 250 mm flashing outside;
(iv) The wall plate applied above the lintel is of size (50 x 100) mm
(v) The ridge is at 1500 mm above the wall plate to complete a gable room; and
(vi) The fascia board is of size 200 mm.

Note: Any other assumptions made should clearly be shown on the drawing.