THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL OF TANZANIA

FORM TWO NATIONAL ASSESSMENT

072 **ARCHITECTURAL DAUGHTING**

Time: 2:30 Hours. **ANSWER** **Year: 2023**

Instructions

1. This paper consists of sections **A**, **B** and **C** with a total of **ten (10)** questions.
2. Answer **all** questions.
3. Section A carries **15** marks; section B carries **45** marks and section C carries 40 marks.
4. All writing must be in **black** or **blue** ink and drawings must be in **pencil**.
5. Cellular phones and unauthorized materials are **not allowed** in the examination room.
6. Write your **Assessment Number** at the top-right hand corner of every page.

FOR EXAMINER'S USE ONLY		
QUESTION NUMBER	SCORE	EXAMINER'S INITIIALS
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
TOTAL		
CHECKER'S INITIALS		

SECTION A (15 MARKS)

Answer all questions in this section

1. Choose the correct answer from the given alternatives and write its letter in the box provided.

(i) Why is it required to keep more space in the left side of a paper when drawing the borderlines in a drawing?

A. For filing or binding of a paper

B. For fixing papers on the board

C. For numbering of papers

D. For folding of papers

A. For filing or binding of a paper.

Extra space is left on the left side of the drawing sheet to allow filing or binding without interfering with the drawing area. This ensures that important drawing details are not damaged or hidden when the paper is bound or stored.

(ii) What is the purpose of sharpening the lead of a pencil to chisel point?

A. To draw long thin lines with uniform thickness

B. To draw long thin lines with non-uniform thickness

C. For sketching works and lettering

D. For drawing thick lines with non-uniform thickness

A. To draw long thin lines with uniform thickness.

A chisel point allows the pencil to maintain a consistent edge while drawing, producing long straight lines with uniform thickness, which is essential for neat technical drawings.

(iii) Suppose you are required to draw a floor plan of class room which is 9m long and 6m wide in A4 drawing paper, what scale will you use?

A. Mixed scale

B. Enlarging scale

C. Full scale

D. Reduced scale

D. Reduced scale.

The actual dimensions of the classroom are too large to fit on an A4 sheet at full size. A reduced scale is therefore necessary to represent the floor plan accurately within the limited paper size.

(iv) Which effect will occur when an angle of view is placed too near to the object in a perspective view?

A. Large projection view will be formed

B. Projection view will be formed

C. Projection view cannot be formed

D. Distortion of projection view will occur.

D. Distortion of projection view will occur.

When the angle of view is too close to the object, the perspective becomes exaggerated, causing distortion where parts of the object appear unnaturally large or stretched.

(v) Which drawing technique shows a true sectional view of sloped surface of an object?

A. Orthographic

B. Auxiliary

C. Pictorial

D. Perspective

B. Auxiliary.

Auxiliary drawing is used to show the true shape and size of inclined or sloped surfaces, which cannot be accurately represented in standard orthographic views.

(vi) What do hidden lines in orthographic projection denote?

A. Holes and slots

B. Change of plane

C. Position of cut

D. Centre of a circle or cylinder

A. Holes and slots.

Hidden lines represent edges and features that are not directly visible in a particular view, such as internal holes and slots within an object.

(vii) Legibility is the first principle to be observed when lettering, dimensioning and writing notes on a drawing. Which factors will affect this principle?

A. Spacing and arrangement of letters

B. Number and arrangement of letters

C. Spacing and number of letters

D. Arrangement and suitability of letters.

A. Spacing and arrangement of letters.

Proper spacing and orderly arrangement of letters ensure that text on drawings is clear, readable, and easily understood without confusion.

(viii) Suppose the scale of drawing a detail of a foundation of a building is 1:20, what is the representative fraction?

A. 20

B. 0.02

C. 0.5

D. 1/20

D. 1/20.

A representative fraction expresses the ratio of drawing size to actual size in numerical form. For a scale of 1:20, the representative fraction is written as 1/20.

(ix) What is the next size of drawing paper after the 210mm × 297mm size?

A. 148mm × 210mm

B. 297mm × 420mm

C. 420mm × 594mm

D. 105mm × 148mm

B. 297mm × 420mm.

According to the ISO A-series paper sizes, the size following A4, which is 210mm × 297mm, is A3, measuring 297mm × 420mm.

(x) Which angle among the following will you use when producing the plan of an irregular hexagon?

A. 90°

B. 70°

C. 30°

D. 150°

C. 30°.

In geometric construction, angles such as 30° are commonly used as reference angles when laying out irregular polygons to achieve correct orientation and proportions.

2. Match the descriptions of uses of the drawing instruments given in List A with their corresponding drawing instruments in List B by writing a letter of the corresponding correct response below the item number in the table provided.

LIST A

(i) A drawing instrument used to draw angles from 0° to 90°

(ii) A drawing instrument used to transfer similar dimensions

(iii) A drawing instrument used to draw circles and arcs

(iv) A drawing instrument used together with T-square to draw vertical and inclined lines

(v) A drawing instrument used to draw curves

LIST B

A. T-square

B. Set-square

C. Adjustable square

D. Protractor

E. Compass

F. French curve

G. Divider

H. Scale

List A (i) (ii) (iii) (iv) (v)

List B D, G, E, B, F

SECTION B (45 MARKS)

Answer all questions from this section

3. (a) Briefly explain five reasons for an architect to study technical drawing?

(i) Technical drawing enables an architect to communicate ideas clearly.

It provides a standard visual language through which design ideas can be accurately conveyed to clients, engineers, and builders without ambiguity.

(ii) Technical drawing helps an architect interpret and prepare construction drawings.
Architects must understand drawings such as plans, sections, and elevations to translate design concepts into workable construction documents.
(iii) Technical drawing ensures accuracy and precision in design.
By using standard drawing techniques and instruments, architects can produce drawings that show exact dimensions and relationships between building elements.
(iv) Technical drawing assists in coordination with other professionals.
Engineers, quantity surveyors, and contractors rely on architectural drawings to coordinate structural, electrical, and mechanical works.
(v) Technical drawing develops spatial and visual thinking skills.
Studying technical drawing improves the architect's ability to visualize objects and spaces in three dimensions, which is essential in building design.

(b) What are the duties of the following building team members in successfully completing the construction of the building?
(i) The clerk of works
The clerk of works supervises construction on site to ensure that work is carried out according to drawings, specifications, and contract conditions. The clerk also checks the quality of materials and workmanship and reports progress or defects to the architect.
(ii) The quantity surveyor
The quantity surveyor prepares cost estimates, bills of quantities, and advises on financial planning. During construction, the quantity surveyor controls costs, evaluates work done, and prepares payment certificates.
(iii) An engineer
The engineer designs and supervises structural, electrical, and mechanical systems of the building. The engineer ensures that the structure is safe, stable, and complies with technical standards and regulations.

(iv) The client

The client provides the project brief, finances the project, and makes key decisions regarding design and construction. The client also approves drawings, budgets, and major changes during the project.

(v) The site agent

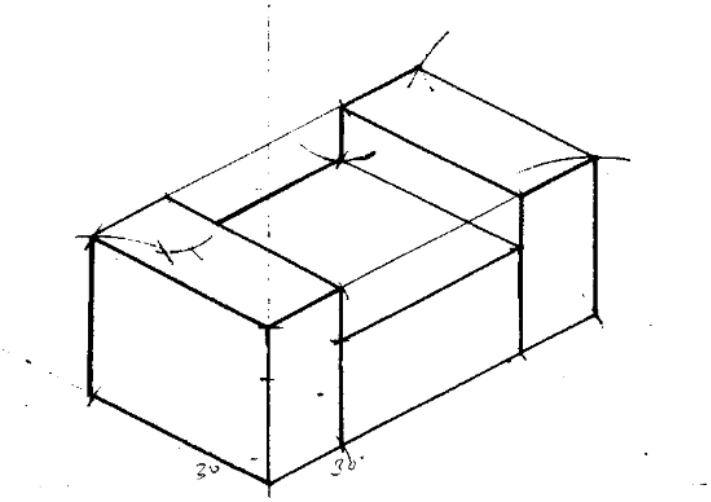
The site agent manages daily construction activities on site. The site agent coordinates workers, materials, and equipment, ensures work follows the program, and maintains communication between the contractor and consultants.

4. (a) What is the difference between axonometric and oblique projections?

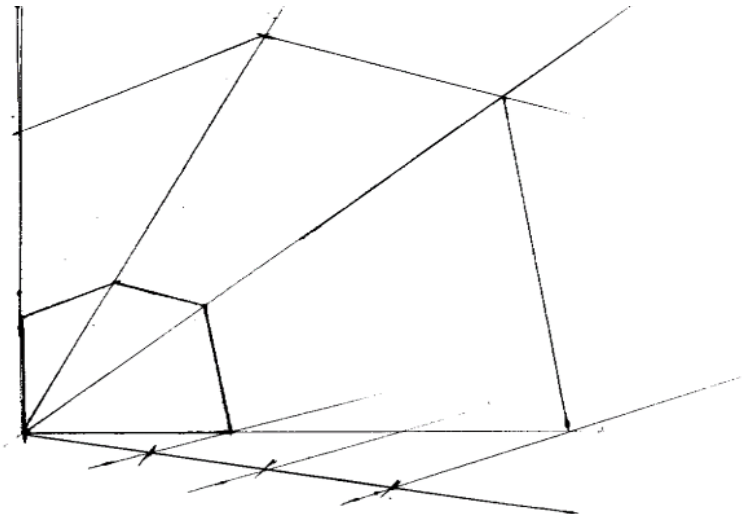
Axonometric projection represents an object with all three axes inclined to the plane of projection, and dimensions along the axes are usually drawn to scale, as seen in isometric drawings.

Oblique projection represents the front face of the object in true shape and size, while the depth is drawn at an angle and often reduced, making oblique drawings simpler but less realistic than axonometric drawings.

(b) Figure 1 is an Orthographic drawing of a kitchen chair. By using a scale of 1:10, draw an isometric pictorial projection of the chair.



5. (a) The Figure 2 is a wooden bracket to support a kitchen cabinet. In order fro the bracket to carry more loads, its are should be enlarged by the ratio of 4:5. Draw the given view and construct a similar figure whose area is enlarged by the given ratio.



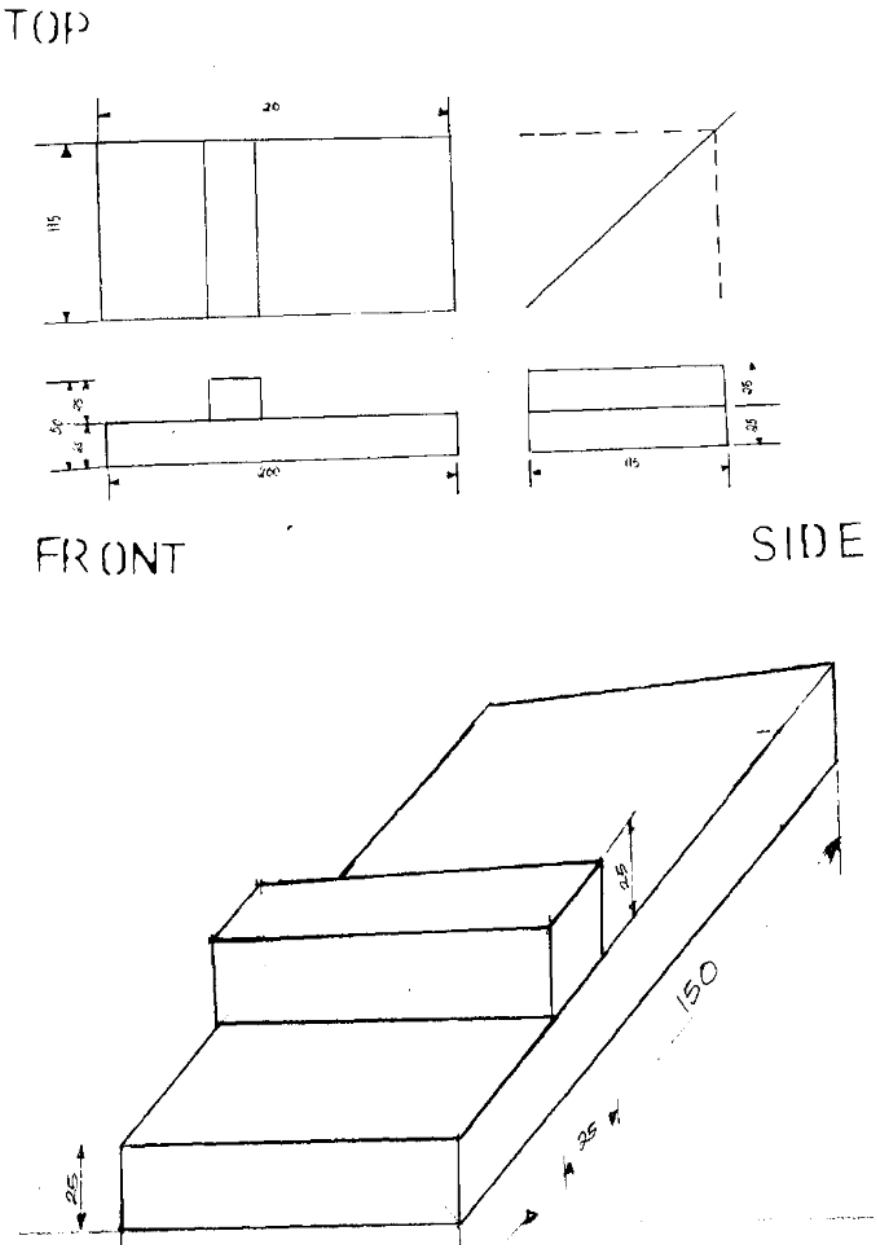
SECTION C (40 MARKS)

Answer all questions from this section

6. The Figure 4 is a wooden brick closer gauge which will help a mason to cut a brick in a quarter or three quarter closer. By using a scale 1:100, draw;

(a) The front elevation, side elevation and plan in third angle projection.

(b) Its oblique projection.



7. The Figure 5 is a wooden model coach to be constructed at a recreation center. By using a csle of 1:10, darw;

   (a) The front elevation, side elevation and paln in first angle projection.

   (b)An isometric projection of a coach.