

2705/205
BUILDING CONSTRUCTION II AND
DRAWING II
June/July 2021
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL
DIPLOMA IN BUILDING CONSTRUCTION
MODULE II

BUILDING CONSTRUCTION II AND DRAWING II

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

- Answer booklet;*
- Drawing paper size A3;*
- Drawing instruments;*
- Scientific calculator.*

This paper consists of EIGHT questions in TWO sections; A and B.

Answer FIVE questions choosing TWO questions from section A, TWO questions from section B and ONE question from either section.

All questions carry equal marks.

Maximum marks for each part of a question are as shown.

Candidates should answer the questions in English.

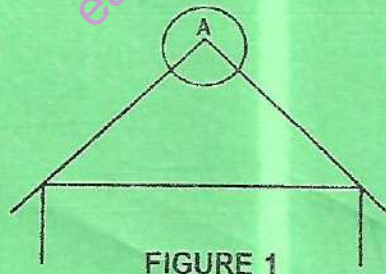
This paper consists of 6 printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

SECTION A: BUILDING CONSTRUCTION II

Answer at least **TWO** questions from this section.

1. (a) State **four** differences between solid concrete floor and hollow pot floors. (8 marks)
- (b) Explain **three** functional requirements of a roof. (6 marks)
- (c) Illustrate **two** methods of lengthening steel purlins. (6 marks)
2. (a) Outline the compaction procedure of a suspended concrete slab using a poker vibrator. (5 marks)
- (b) Explain **four** properties of aggregates used in concreting. (8 marks)
- (c) Sketch a Timber Research and Development Authority (T.R.D.A) truss and state when it can be applied. (7 marks)
3. (a) (i) With the aid of a labelled sectional sketch, outline the procedure of fixing two rows of G.C.I sheets on a roof structure. (14 marks)
- (ii) Differentiate between pre-coated and granulated sheets. (6 marks)
- (b) Sketch **two** joints used in joining timber boards on upper timber floors. (6 marks)
4. (a) **Figure 1** shows a tiled roof. Sketch and label detail A. (5 marks)



- (b) **Figure 2** shows a pent steel roof with timber purlin. Determine the cost of the roofing structure using the data provided. (15 marks)

Cost of 40 x 25 mm steel Ksh. 450/m

Cost of 40 x 40 mm cleat @ Ksh. 100

Cost of 50 x 50 mm purlins Ksh. 100/m

Cost of welding Ksh. 10,000

Cost of 200 x 5 mm fascia / verge board Ksh. 350/m

Cost of G.C.I sheets Kshs. 750/m²

Allow 2% waste

Ignore labour

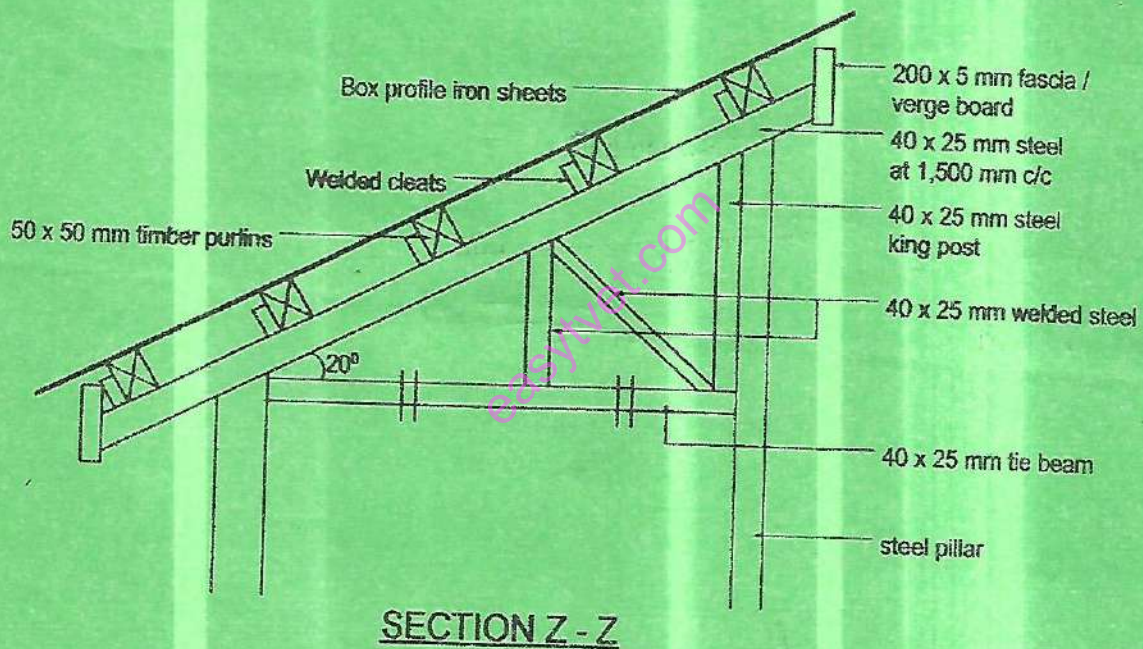
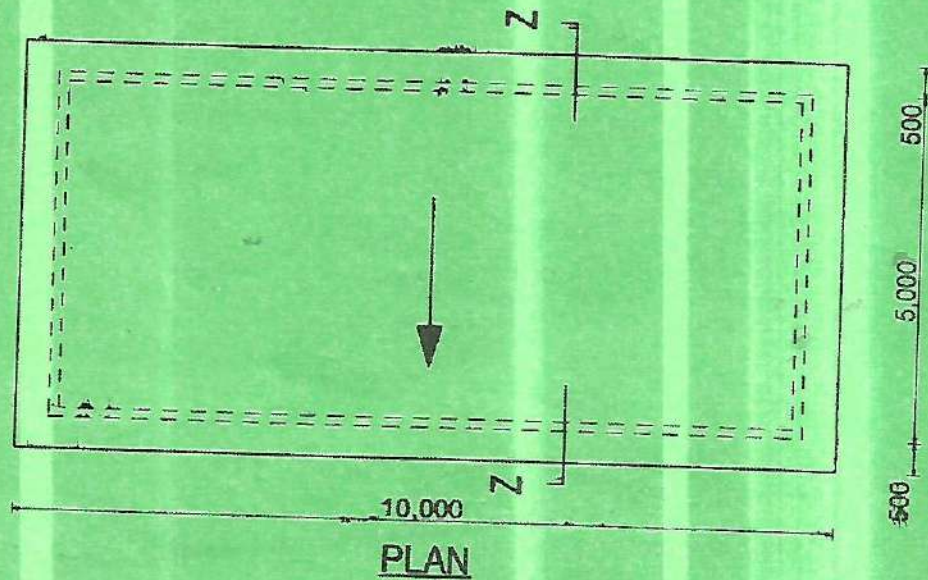


FIGURE 2

SECTION B: DRAWING II

Answer at least TWO questions from this section.

5. (a) State **two** roles of each of the following parties during the design stage:
- (i) developer;
 - (ii) financier;
 - (iii) environmentalist.

(6 marks)

- (b) To a scale of 1:20, draw a section through a wall from foundation to the wall plate using the data given.

Wall plate 125 x 50 mm $\rightarrow 0.25$

Hard core 200 mm $\rightarrow 1$ cm

Blinding 50 mm $\rightarrow 0.25$ cm

Floor slab 150 mm $\rightarrow 0.75$

Floor finish 20 mm $\rightarrow 0.1$

Ring beam 250 x 200 mm $\rightarrow 1.5$ cm

Window opening 1200 x 1200 mm $\rightarrow 6$ cm

Walling 250 mm thick $\rightarrow 1.25$

Glazing 10 mm thick $\rightarrow 0.05$

Strip footing 750 x 350 mm $\rightarrow 3.75$ $\rightarrow 1.75$

Depth of hard core soffit to top of strip footing 600 mm $\rightarrow 3$ cm

Height from top of floor finish to bottom of ring beam 2100 mm = 10.5 cm

$$\begin{array}{r} 3.75 \\ - 1.25 \\ \hline 2.50 \end{array}$$

Assume any other relevant information not given.

(14 marks)

6. (a) Write specification on:

(i) natural stone substructure walling;

(ii) electrical installation.

(8 marks)

- (b) Figure 3 shows a plan of a double joist timber upper floor. To a scale of 1:10 draw section A-A using the data provided.

Wall plate 100 x 75 mm

Bridging joist 75 x 50 mm @ 600 mm c/c

Timber boards 200 x 25 mm

Ceiling boards 50 mm

Ceiling joists 50 x 50 mm

Binders 200 x 100 mm @ 600 mm c/c

Wall thickness 200 mm

(12 marks)

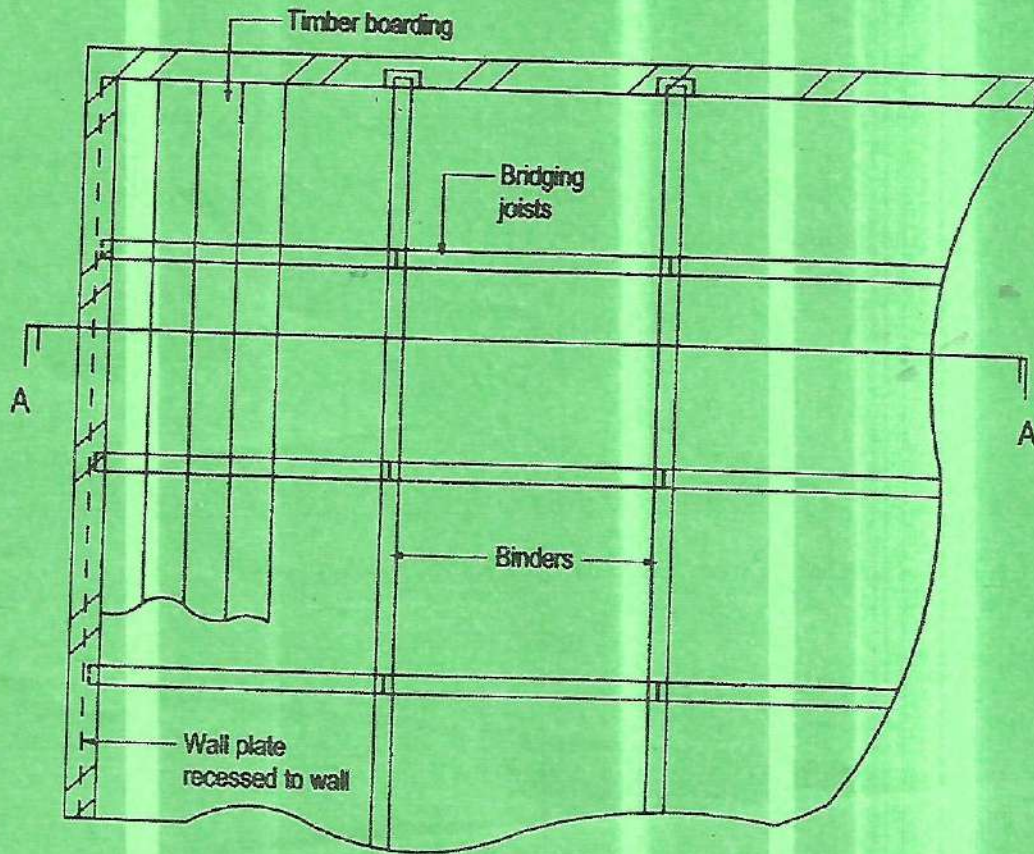


FIGURE 3

7. (a) Explain each of the following documents of land ownership:

- (i) certificate of deed;
- (ii) title deed;
- (iii) certificate of land transfer.

(b) To a scale of 1:25, draw a section through a flat roof using the data provided. (6 marks)

Suspended wall	250 mm thick
Parapet wall	175 mm thick
Roof slab	150 mm thick
c/s screed laid to a fall	1000 mm at parapet and 50 mm at eave
Tilting fillet	50 x 50 mm
Parapet wall height	750 mm
Coping stone	feather edge
Asphalt	20 mm thick
Eaves	500 mm
Roof span	4,000 mm c/c

Assume any other necessary assumption.

8. (a) Explain **three** categories of buildings. (6 marks)
- (b) **Figure 4** shows a double-leaf six panelled door. To a scale of 1:10 draw section X-X using the data provided.

Door frame size	100 x 75 mm
Door stile size	75 x 75 mm
Wall thickness	200 mm
Wall finish	20 mm thick

(14 marks)

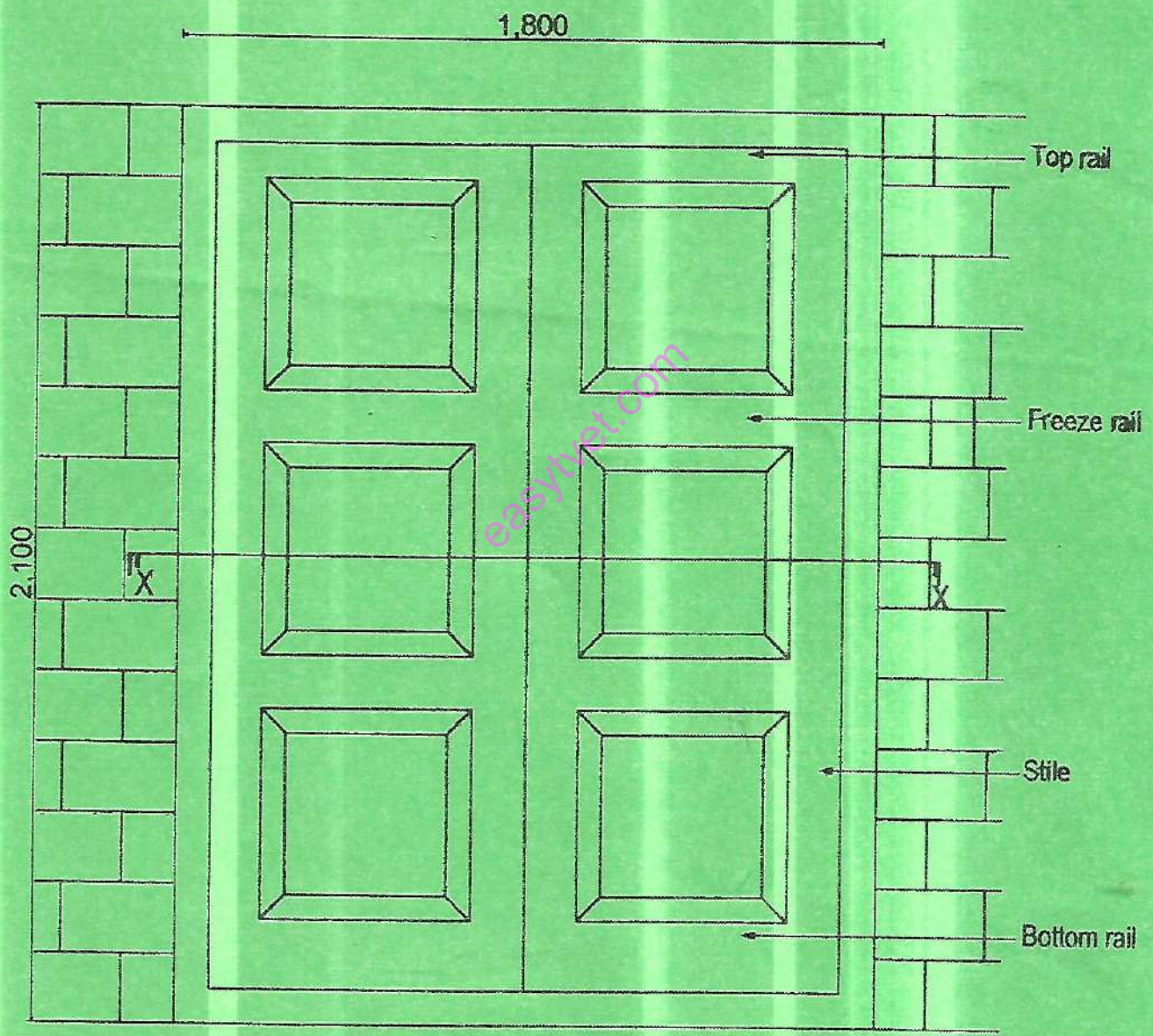


FIGURE 4

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