

To Scan

2705/303

2709/303

2710/303

**BUILDING CONSTRUCTION,
DRAWING III AND SERVICES**

Oct./Nov. 2018

Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

**DIPLOMA IN BUILDING TECHNOLOGY
DIPLOMA IN ARCHITECTURE**

MODULE III

BUILDING CONSTRUCTION, DRAWING III AND SERVICES

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

- answer booklet;*
- scientific calculator;*
- drawing instruments;*
- drawing paper size A3.*

This paper consists of EIGHT questions in THREE sections; A, B and C.

Answer TWO questions from section A, TWO questions from section B and ONE question from section C.

Each question in section A carries 25 marks, questions in section B carry 15 marks each and questions in section C carry 20 marks each.

Maximum marks for each part of a question are indicated.

Candidates should answer the questions in English.

This paper consists of 5 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 (50 marks)

Answer TWO questions from this section.

1. (a) Using labelled sketches, describe each of the following screed floor finishes:
- (i) monolithic;
 - (ii) separated;
 - (iii) unbonded.
- (12 marks)
- (b) With the aid of sketches describe each of the following timber floor finishes:
- (i) wood strip;
 - (ii) wood block;
 - (iii) wood mosaic.
- (13 marks)
2. X (a) Sketch a detailed plan of a column form work. (8 marks)
- (b) Sketch a pictorial view of a kicker and state its use. (4 marks)
- (c) State **four** methods of load distribution through the members of the form work in a decking design. (8 marks)
- (d) List **five** functional requirements of cladding as an external finish to a framed structure. (5 marks)
3. (a) Sketch a labelled truss-out scaffold. (12 marks)
- (b) State **eight** steps that should be undertaken before any demolition work can begin. (8 marks)
- (c) Outline **five** general precautions to be taken before any form of underpinning work is commenced. (5 marks)



SECTION B: DRAWING III (30 marks)

Answer TWO questions from this section.

4. In order to accommodate a significant difference in invert levels, a drop - pipe manhole is provided.

To scale 1:20 draw the drop-pipe manhole given the following information.

Width of manhole	800 x 800 mm	0.8m
Manhole depth	2 m	
Difference in invert levels	1500 mm	1.5m
Foundation depth	2150 mm	2.15m
Foundation thickness	150 mm	0.15m
Thickness of brick wall	225 mm	0.225m
Diameter of drain	100 mm	0.1m

Handwritten calculations:
 2150
 2150
 150
 2300
 0.15

Assume any other information not given.

(15 marks)

5. Figure 1 shows a timber railed flush door consisting of horizontal rails not more than 125 mm apart, faced with ply wood.

To scale 1:2 draw a cross-section at X - X given the following information.

- Stile - 115 x 50 mm
- Hardwood edging strip - 50 x 25 mm
- Plywood facing

Assume any other information not given.

(15 marks)

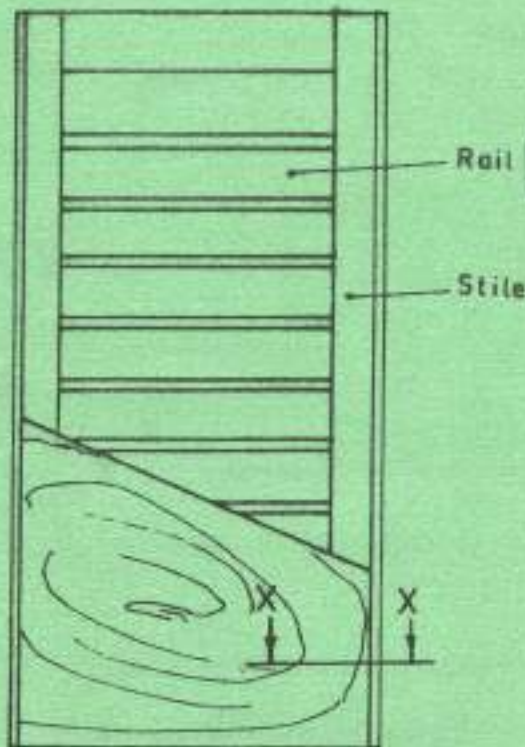


Fig. 1

6. A two storey building for a dairy company is to be constructed as shown in figure 2. The foundation is designed to be a reinforced strip.

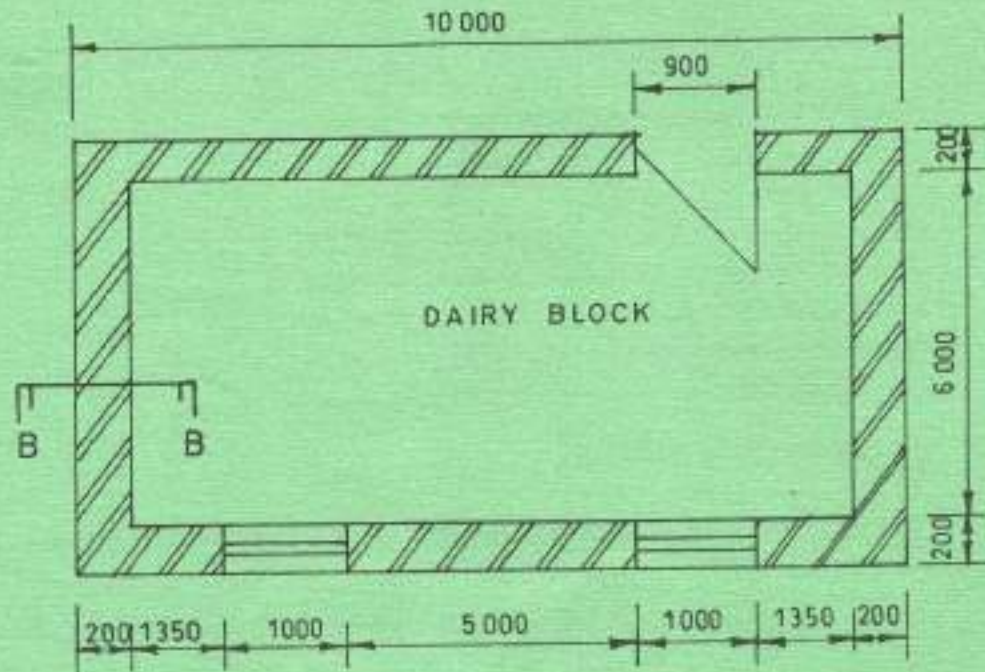


Fig. 2

• ALL DIMENSIONS IN mm

To scale 1:10 draw a section of the foundation detail at B-B given the following information.

Foundation depth	900 mm
Foundation thickness	150 mm
Foundation width	600 mm
Foundation wall	200 mm
Reinforcement cover	75 mm
Base blinding	50 mm



Show the main and distribution bars. Assume any other information not given.

(15 marks)

SECTION C: SERVICES (20 marks)

Answer ONE question from this section.

7. (a) Using line diagram describe the distribution of electricity from power station to domestic and industrial user. (8 marks)
- (b) Sketch and label each of the following features:
- (i) one-way single-pole switch circuit controlling one lamp;
 - (ii) one-way single-pole switch circuit controlling two or more lamps. (6 marks)

(c) Describe each of the following fire-fighting equipment:

- (i) hose reels;
- (ii) asbestos blankets;
- (iii) portable fire extinguishers.

(6 marks)

8. ✓ (a) Define each of the following terms:

- (i) sewer;
- (ii) water closet;
- (iii) drain;
- (iv) soil water fitting.

(4 marks)

(b) Illustrate an Indirect cold-water system.

(9 marks)

(c) Describe a cesspool.

(7 marks)

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