

2705/205

**BUILDING CONSTRUCTION II
AND DRAWING II**

Oct./Nov. 2016

Time: 3 hours

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THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN BUILDING TECHNOLOGY

MODULE II

BUILDING CONSTRUCTION II AND DRAWING II

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Answer booklet;

Scientific calculator/Mathematical table;

Drawing instruments;

Metric scale rule/drawing paper size A3.

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

*Answer any **FIVE** questions choosing at least **TWO** questions from each section in the answer booklet provided.*

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 **five** functional requirements of upper floors. (5 marks)
- (b) Sketch and label a detailed cross-section of an upper hollow pot floor. (5 marks)
- (c) Using suitable sketches, distinguish between in-situ reinforced concrete floor and precast concrete arched beams. (10 marks)
2. (a) Describe the following forms of roof construction:
- (i) typical roof trusses;
- (ii) typical trussed rafters. (8 marks)
- (b) (i) State the **two** primary functions of any domestic roof.
- (ii) State **three** functional requirements of a roof designed and constructed in a very exposed situation. (5 marks)
- (c) With the aid of a sketch, describe how the fall of a concrete flat roof is achieved. (7 marks)
3. (a) (i) Describe the construction of a shell roof.
- (ii) State **three** main features of shell roofs. (9 marks)
- (b) (i) Sketch a labelled cross-section of a barrel vault.
- (ii) Sketch fully annotated barrel vault expansion joint. (11 marks)
4. (a) (i) State **five** basic functions of roof coverings.
- (ii) Illustrate the following terms as used with corrugated sheets, deep corrugated sheets and tile profile sheets respectively:
- (I) pitch;
- (II) sheet width;
- (III) lap. (11 marks)
- (b) Make a cross-section through the ridge of a plain tiled roof to show all members. (9 marks)

SECTION A: DRAWING II

Answer at least TWO questions from this section.

5. (a) (i) Define the following documents in planning:
- (I) contract agreement;
 - (II) certificate of ownership;
 - (III) working drawings.
- (ii) Explain five types of drawings used in building construction. (8 marks)
- (b) Describe the following:
- (i) Architect's drawing;
 - (ii) Engineers drawings;
 - (iii) Schedules. (5 marks)
- (c) Outline seven stages through which a developer's drawings undergo before approval for construction. (7 marks)
6. (a) A living room whose height from floor-to-ceiling measures 3000 mm is to be cast with a floor slab on top of it. For accessibility to the first floor level, a stair is required.

Table 1

	Minimum width	Maximum rise	Minimum tread	Minimum headroom
Group 1	762 mm	190 mm	229 mm	2057 mm
Group 2	1143 mm	165 mm	254 mm	2137 mm

- (i) From table 1, design a stair for the room using the following information:
- (I) floor thickness = 150 mm
 - (II) the stair is of concrete.
- (ii) Draw the stair to scale 1:20. (10 marks)
- (b) Figure 1 shows a landing support detail of a concrete stair. Redraw the figure and show all the reinforcement details. (10 marks)

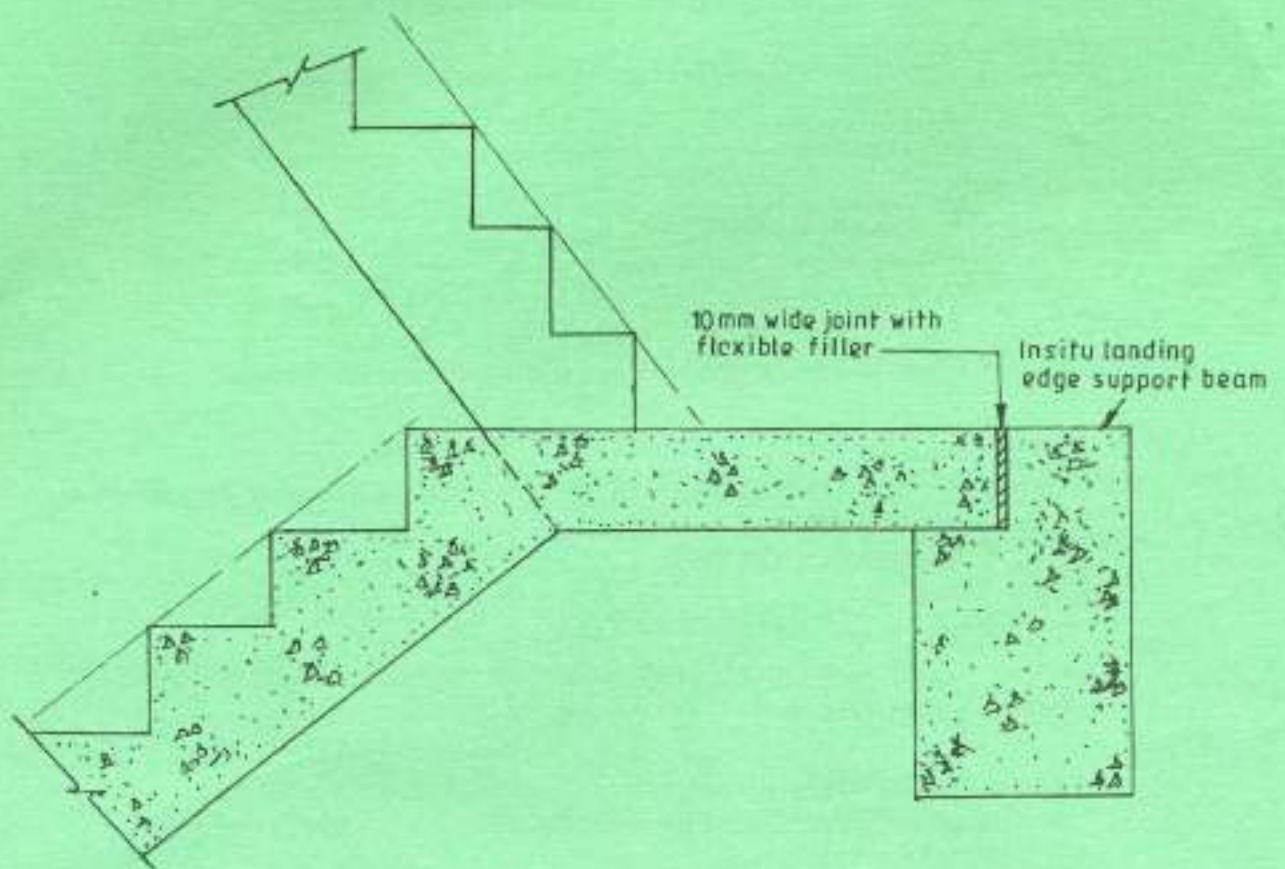


Fig. 1

7. (a) Draw to a scale of 1:20, the plan and elevation of the entrance door to a building as shown in figure 2. (10 marks)

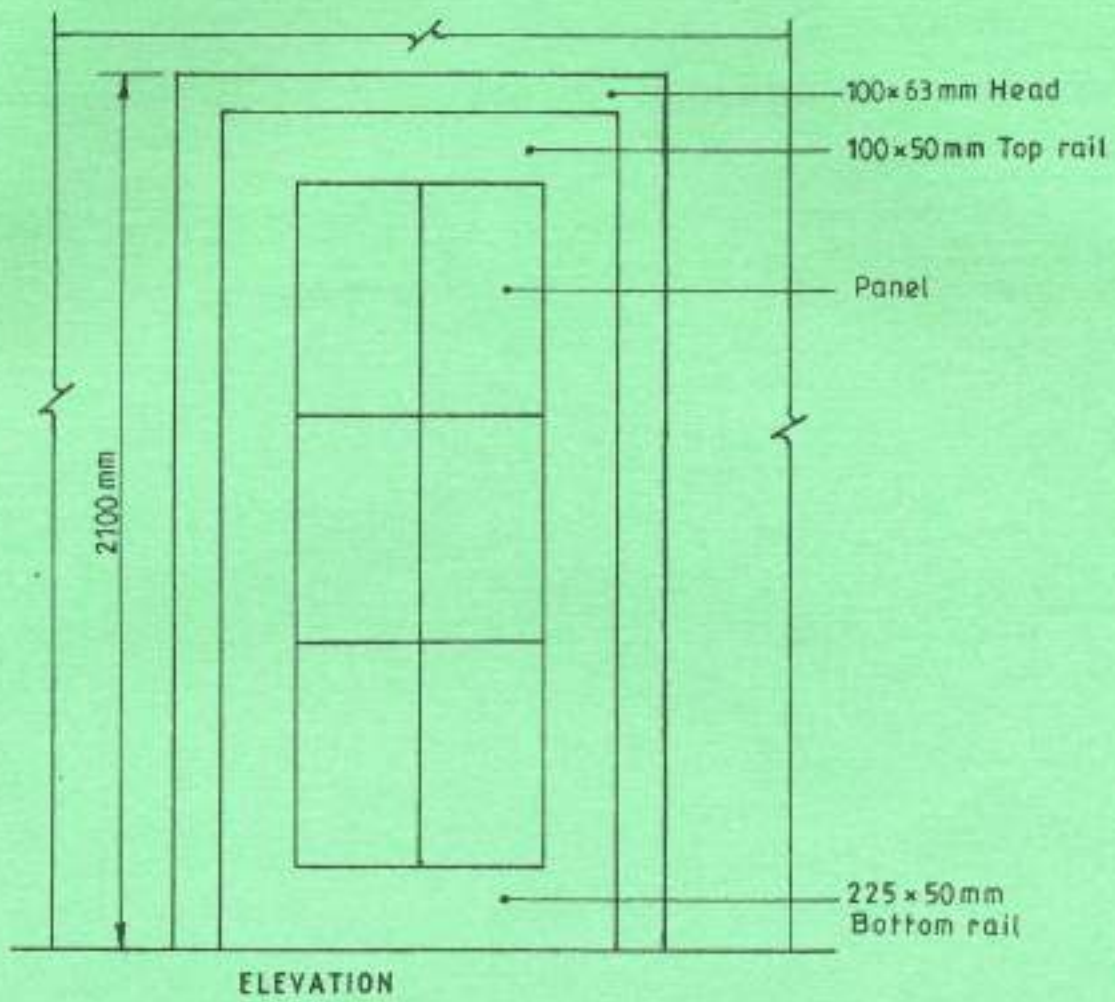


Fig. 2

- (b) Draw, to a scale of 1:5 the horizontal and vertical sections of the door and frame in figure 2. (10 marks)

8. (a) State five Kenya building by-laws regarding the supply of water to buildings and homes. (5 marks)
- (b) Explain five Kenya building by-laws as far as the following utilities are concerned:
- (i) soil pipe;
 - (ii) vent pipe. (5 marks)
- (c) Describe how sewage treatment works is carried out by use of a cesspool. (10 marks)

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