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**BUILDING CONSTRUCTION III,
DRAWING III AND SERVICES**

Oct./Nov. 2021

Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

**DIPLOMA IN BUILDING TECHNOLOGY
DIPLOMA IN ARCHITECTURE**

MODULE III

BUILDING CONSTRUCTION III, 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** in the answer booklet provided.*

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

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

*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 III

Answer **TWO** questions from this section.

- ✓ 1/ (a) Describe:
- (i) **four** components of paints.
 - (ii) each of the following paint defects:
 - I. bleeding;
 - II. blooming;
 - III. chalking;
 - IV. saponification.
- (16 marks)
- (b) (i) State **three** requirements of a good plaster.
- (ii) Describe each of the following defects in plaster:
- I. blistering;
 - II. efflorescence;
 - III. popping.
- (9 marks)
2. (a) (i) State **four** advantages of pointing in jointing.
- (ii) Illustrate the following types of pointing:
- I. tuck pointing;
 - II. beaded pointing;
 - III. v-grooved pointing.
- (10 marks)
- (b) Outline **four** requirements of good formwork. (8 marks)
- (c) (i) Define the term underpinning.
- (ii) Describe each of the following underpinning methods:
- I. Conventional pit method;
 - II. Jet grouting method.
- (7 marks)
- ✓ 3/ (a) Define each of the following terms in staircase construction:
- (i) nosing;
 - (ii) going;
 - (iii) newel post;
 - (iv) balusters.
- (4 marks)

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(b) State **four** functional requirements of ground floors. (6 marks)

(c) Describe each of the following methods of fixing wall tiles:

- (i) thin bedding;
- (ii) thick bedding. (6 marks)

(d) (i) Define the term shoring.

(ii) Illustrate the following types of shoring:

- (I) dead shoring;
- (II) raking shoring.

(9 marks)

SECTION B: DRAWING III

Answer **TWO** questions from this section.

4. Using drawing **No. 01** and to a scale of 1:50 draw section H - H. (15 marks)

5. Using draw **No. 02** and to a scale of 1:100 draw and label section X-X. (15 marks)

6. Using the information provided below, draw an eave detail to a scale of 1:20.

Data

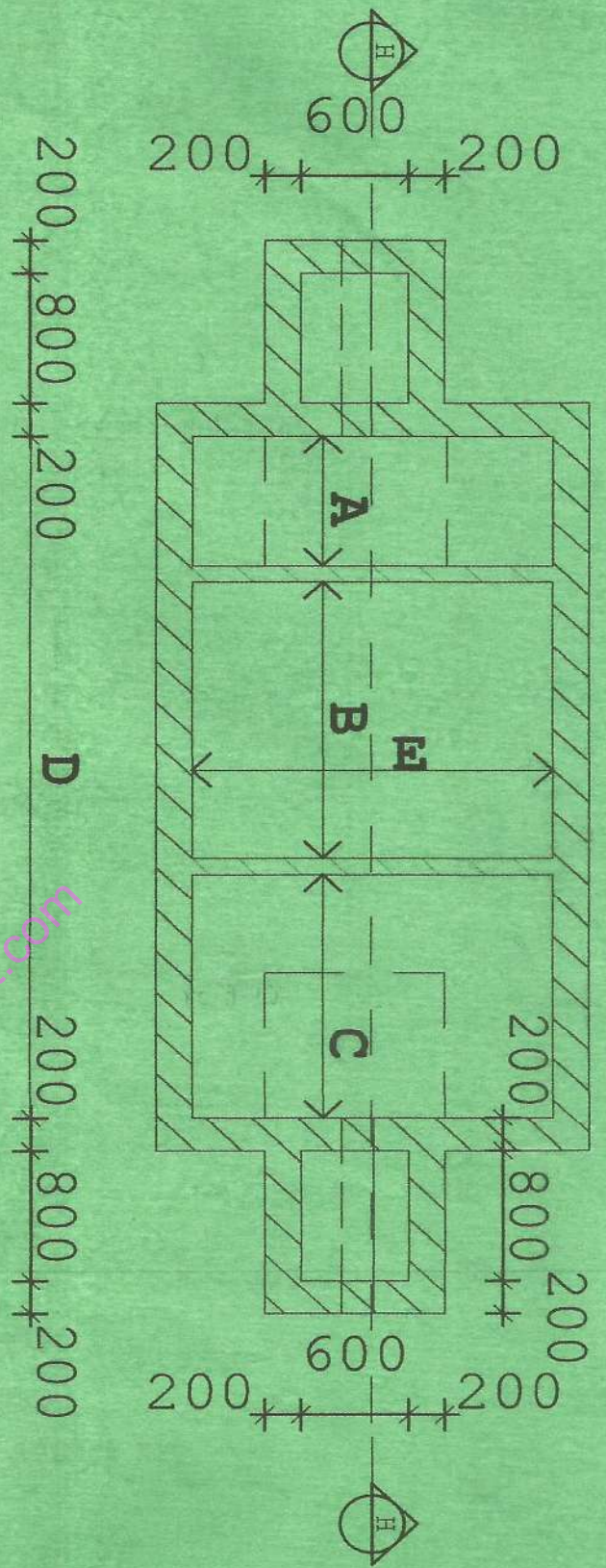
- Roof pitch 22.5
- GCI sheets;
- 75 x 50 mm purlins;
- 100 x 50 mm rafters;
- 100 x 50 mm struts;
- 100 x 50 mm tie beam;
- 100 x 50 mm wall plate;
- 200 x 25 mm fascia board;
- 100 x 25 mm T and G timber eave soffit;
- 200 mm thick walling;
- 300 mm x 200 mm ring beam

(15 marks)

SECTION C: BUILDING SERVICES

Answer **ONE** question from this section.

7. (a) (i) Define each of the following terms:
- I. electric current;
 - II. potential difference;
 - II. conductors.
- (ii) State **three** characteristics for each of the following;
- I. direct current;
 - II. alternating current. (12 marks)
- (b) Sketch and label a section through a typical masonry wall inspection chamber. (8 marks)
8. (a) (i) Define the term ventilation. (8 marks)
- (ii) Outline **three** advantages of a mechanical ventilation system. (7 marks)
- (b) State **five** factors that govern the design of a drainage system. (5 marks)
- (c) Describe each of the following types of fire extinguishers:
- (i) foam type extinguishers;
 - (ii) CO₂ fire extinguisher (8 marks)
- Handwritten notes:*
Types of
Relative to
building
other
Extinguishers & Public Services



SEPTIC TANK PLAN LAYOUT.

CAPACITY IN LITRES	NO. OF PERSONS	DESUDING INTERVALS (YEARS)	DIMENSIONS IN MM						
			A	B	C	D	E	F1	F2
240000	120	2	800	2100	1800	5000	2800	1800	1600

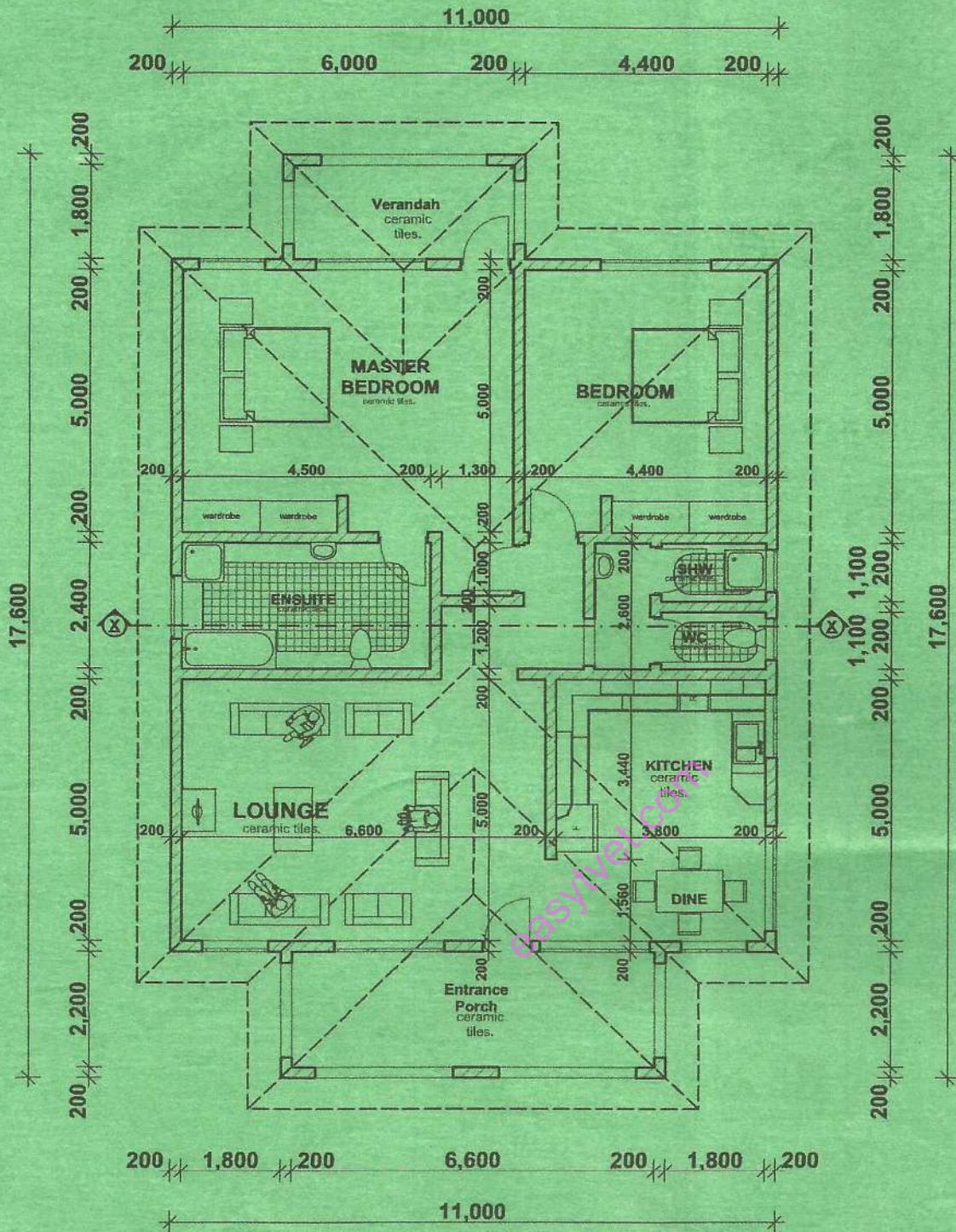
NOTES:

Window sizes:

- F1 - 1800mm (Depth from inlet MH to Septic floor).
- F2 - 1600mm (Depth from outlet MH to Septic floor).
- Assume any other necessary information not provided.

Drawing No. 01

Turn over



FLOOR PLAN

Drawing No. 01

NOTE:

ROOF DETAILS:

- Roof pitch 22.5°
- Rafters - 100 x 50mm
- Tie beam - 100 x 50mm
- Fascia board - 200 x 25mm
- Purlis - 100 x 50mm
- Struts - 100 x 50mm
- Wall plate - 100 x 50 mm

FOUNDATION DETAILS:

- Adopt details for a Typical Strip Foundation.

- Assume any relevant information not provided

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