

1704/103

**BUILDING CONSTRUCTION I
AND DRAWING**

June/July 2019

Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

CRAFT CERTIFICATE IN BUILDING TECHNOLOGY

MODULE I

BUILDING CONSTRUCTION I AND DRAWING

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Answer booklet;

Mathematical tables/non programmable scientific calculator;

Drawing instruments;

Size A3 drawing paper.

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

*Answer **FIVE** questions choosing at least **TWO** questions from each section.*

All questions carry equal marks.

Maximum marks for each part of a question are indicated.

Candidates should answer the questions in English.

This paper consists of 6 printed pages.

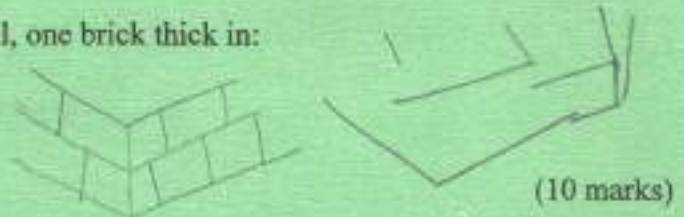
**Candidates should check the question paper to ascertain that
all the pages are printed as indicated and that no questions are missing.**

SECTION A: BUILDING CONSTRUCTION I

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

1. (a) State **four** purposes of soil investigation. (4 marks)
- (b) List **four** factors that determine the soil investigation method. (4 marks)
- (c) Using sketches, differentiate between the following types of strip foundations:
- (i) wide strip foundation;
- (ii) wide strip foundation in the form of an inverted 'T' beam. (12 marks)

2. (a) List **five** advantages of natural stone over other materials for use as foundation walls. (5 marks)
- (b) Describe **two** kinds of pressures a foundation wall is likely to experience. (5 marks)
- (c) Sketch a plan of a return corner wall, one brick thick in:
- (i) English bond;
- (ii) Flemish bond.



3. Using appropriate sketches, describe the laying of a mass concrete ground floor slab citing the following:

- (a) damp proof membrane;
- (b) damp proof course;
- (c) bays;
- (d) termite treatment;
- (e) chequer board sequence.



4. (a) Define the following natural stones giving an example of each:
- (i) sedimentary rocks; - *sea basalt*
- (ii) igneous rocks; - *limestone*
- (iii) metamorphic rocks. -
- (b) Define the term arches and name **four** types. - *semi circular, Sedimental arch* (6 marks)
- (c) State **five** functions of internal walls. (5 marks)
- (d) Define the term plaster and name the **three** steps to follow in plastering. (4 marks)

SECTION B: DRAWING

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

5. (a) Construct a scale of 2 cm equals 1 m, to read up to 6 m in decimeters. (5 marks)
- (b) Construct a scale of $1\frac{1}{2}$ times full size, to read up to 8 cm in mm. (5 marks)
- (c) **Figure 1** below shows two unequal circles. Draw the two circles and construct an internal tangent to the two unequal circles. (5 marks)

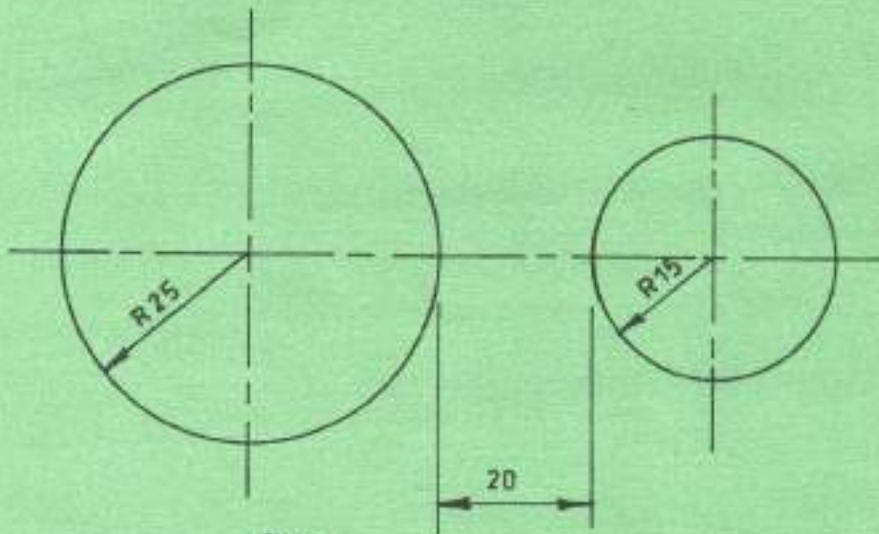


Fig. 1

- (d) Given below is **figure 2**. Draw the figure ABCDE. Enlarge it so that AB is 60 mm long. (5 marks)

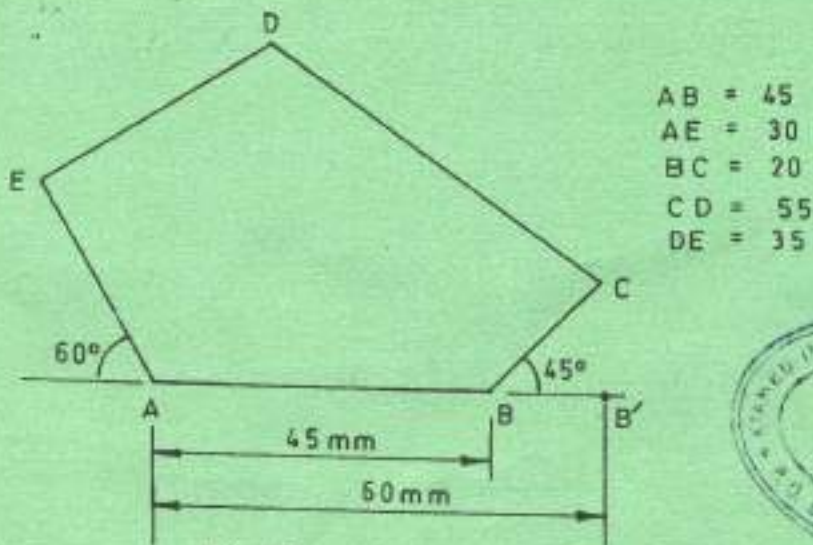
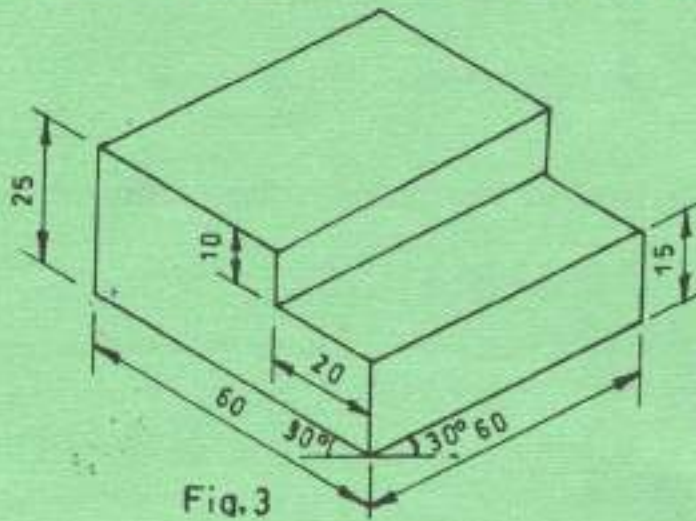


Fig. 2



6. (a) Figure 3 shows an L-shaped block. Draw the block in oblique projection.

(5 marks)



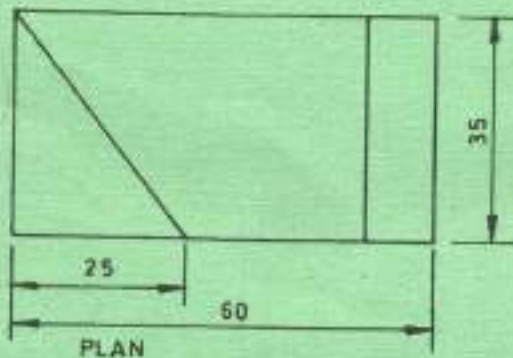
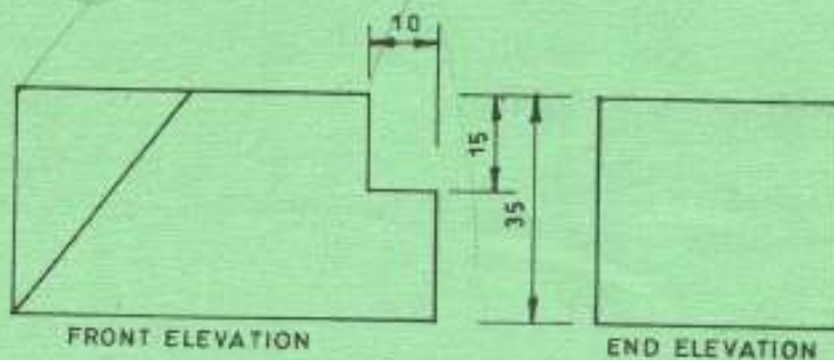
(b) A front elevation, plan and an incomplete end elevation of a block of wood is shown in figure 4.

(i) Draw the views and complete the end elevation.

(5 marks)

(ii) Make an isometric drawing of the block, in free hand.

(10 marks)



(a)

Figure 5 shows a block in isometric. Draw orthographic views of the block in first angle projection; with the front elevation looking in the direction of arrow x.

(14 marks)

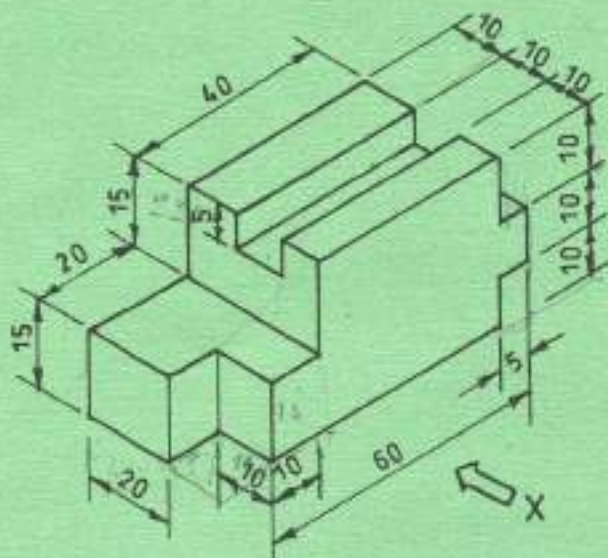
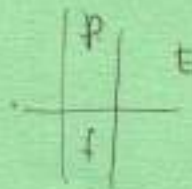


Fig 5



(b) Explain the following terms used in working drawings:

- (i) plan;
- (ii) sections;
- (iii) elevations.

(6 marks)



8. Two square prisms are joined together as shown in figure 6. Draw the development of prism B. (20 marks)

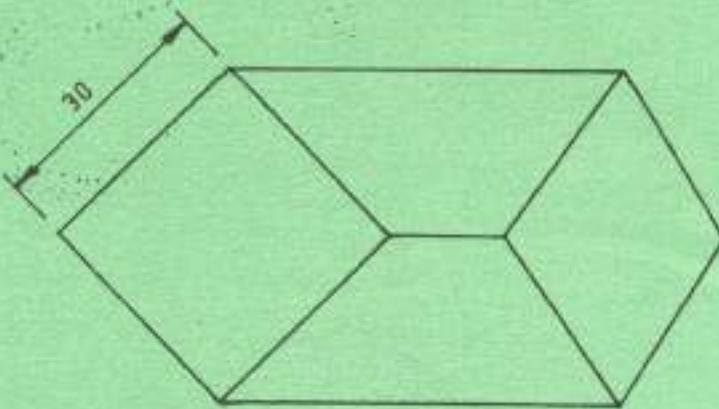
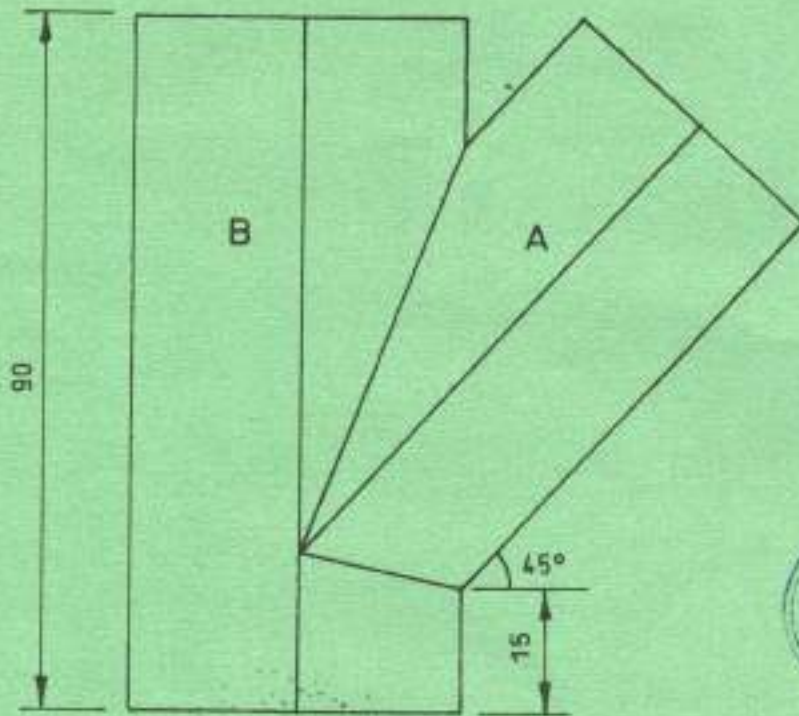


Fig.6

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