

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.**

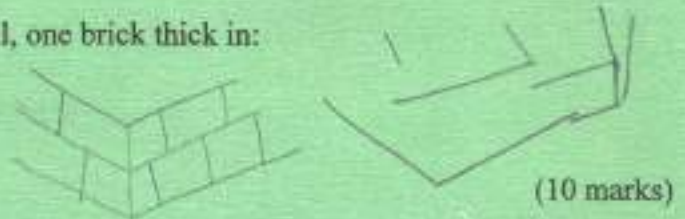
**Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.**

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.



(20 marks)

4. (a) Define the following natural stones giving an example of each:
- (i) sedimentary rocks; - *sea basalt*
  - (ii) igneous rocks; - *limestone*
  - (iii) metamorphic rocks. -
- (6 marks)
- (b) Define the term arches and name **four** types. - *semi circular, Sedimental arch* (5 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)

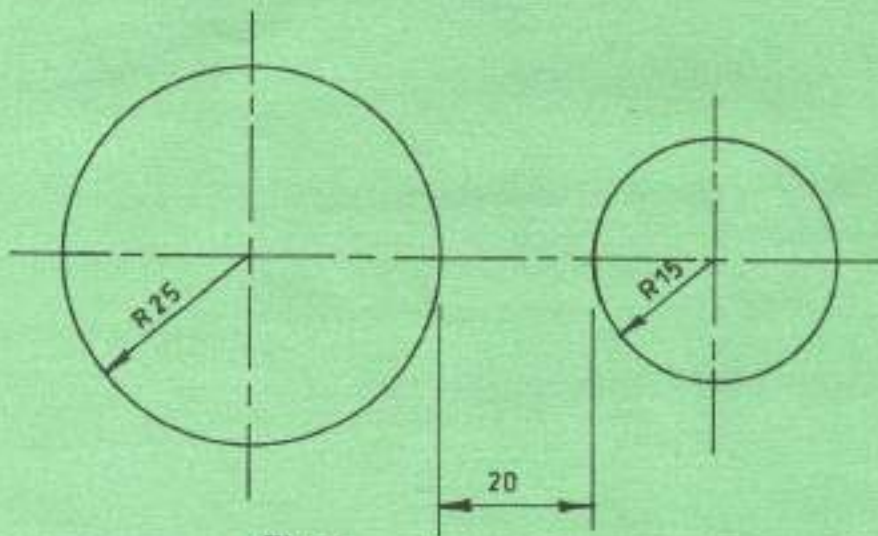
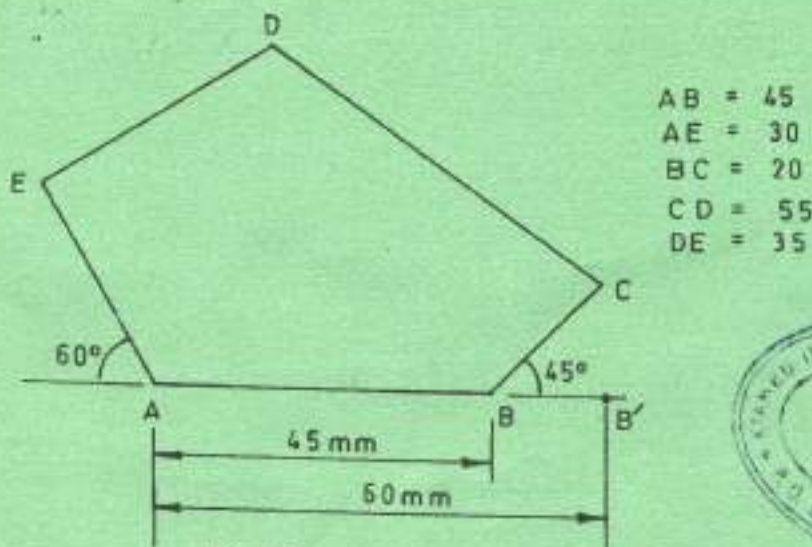


Fig. 1

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



- AB = 45
- AE = 30
- BC = 20
- CD = 55
- DE = 35

Fig. 2



6. (a) Figure 3 shows an L - shaped block. Draw the block in oblique projection. (5 marks)

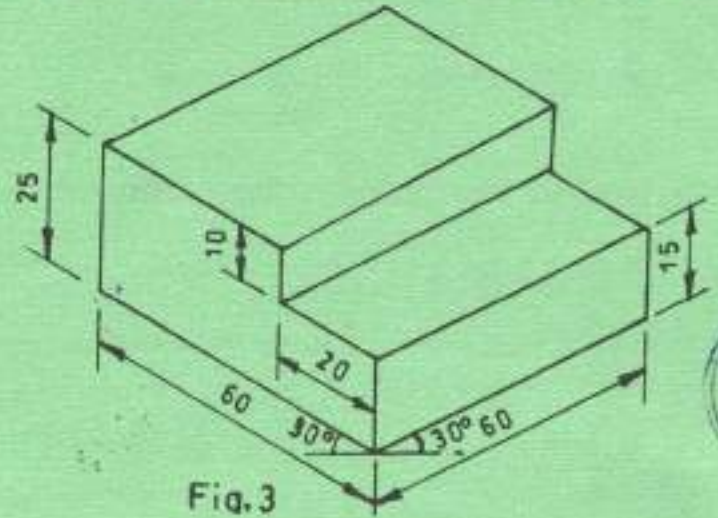


Fig.3



(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)

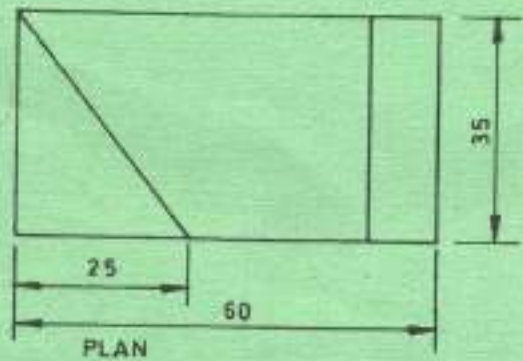
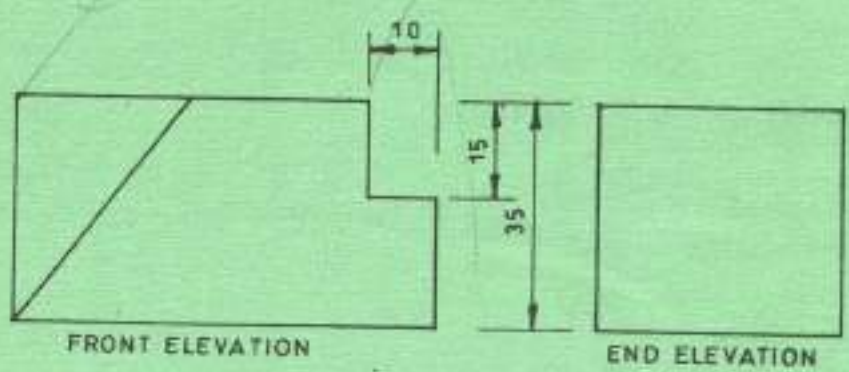


Fig. 4



(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)

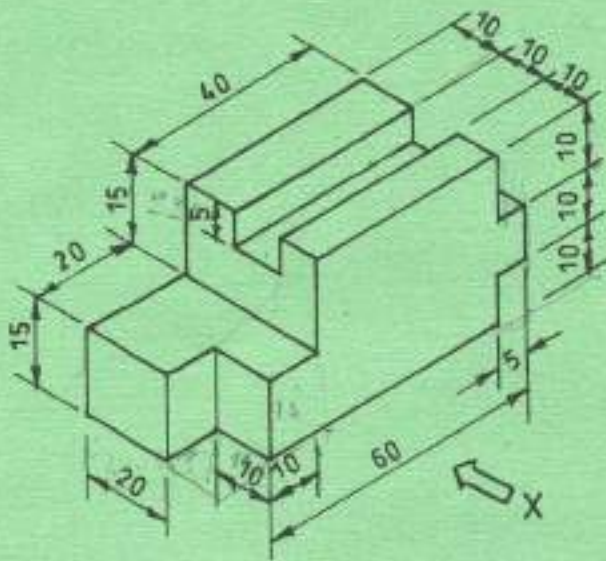
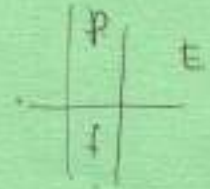


Fig 5



(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)

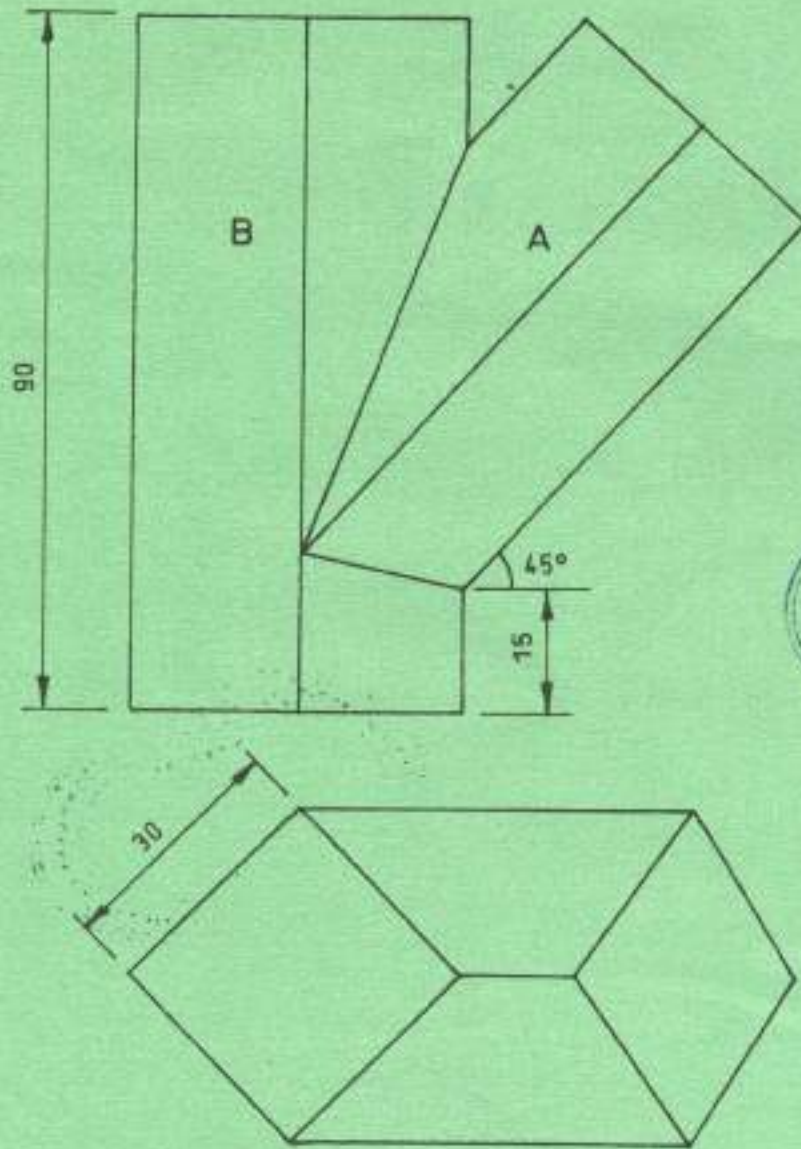


Fig.6

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