

1704/103  
BUILDING CONSTRUCTION I  
AND DRAWING  
June/July 2023  
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** reasons for applying wall finishes. (4 marks)  
*For weathering, durability, good look, durability*
- (b) (i) Explain the term pointing;  
(ii) Outline the procedure of tuck pointing. (7 marks)
- (c) With the aid of a labelled sketch, outline the procedure of setting out a superstructure wall using a corner profile. (9 marks)
2. (a) State **four** considerations in selection of materials for foundation construction. (4 marks)  
*Type of foundation/construction, Type of soil, Water level from the ground, Space required*
- (b) Explain **three** reasons for providing joints in a foundation wall. (6 marks)  
*Cracking, settlement, Increase bonding strength, Provide prevent formwork*
- (c) With the aid of labelled sketches, explain each of the following types of bonds: (10 marks)
- (i) stretcher bond; 
- (ii) flemish bond.
3. (a) (i) Explain the term 'trench bottoming'. (5 marks)  
(ii) State **three** advantages of trench excavation by machine. (8 marks)
- (b) With the aid of a labelled sketch, describe a pile foundation. (7 marks)
- (c) (i) Sketch and label a pictorial ground floor slab formwork. (8 marks)  
(ii) State **two** reasons for incorporating hard core in ground floors. (7 marks)  
*Prevent floor from cracking, Prevent floor from sinking, Prevent settlements*
4. (a) (i) Differentiate between pre-historic and traditional dwellings. (8 marks)  
(ii) State **four** environmental factors considered in built environment. (8 marks)  
*Type of the soil, Topography of the soil, Level of underground water, Type of foundation to be constructed*
- (b) Explain **two** methods of bridging a wall opening. (4 marks)

(c) Sketch and label each of the following methods of constructing a corner lead in foundations walls:

(i) raking back;

(ii) tothing.

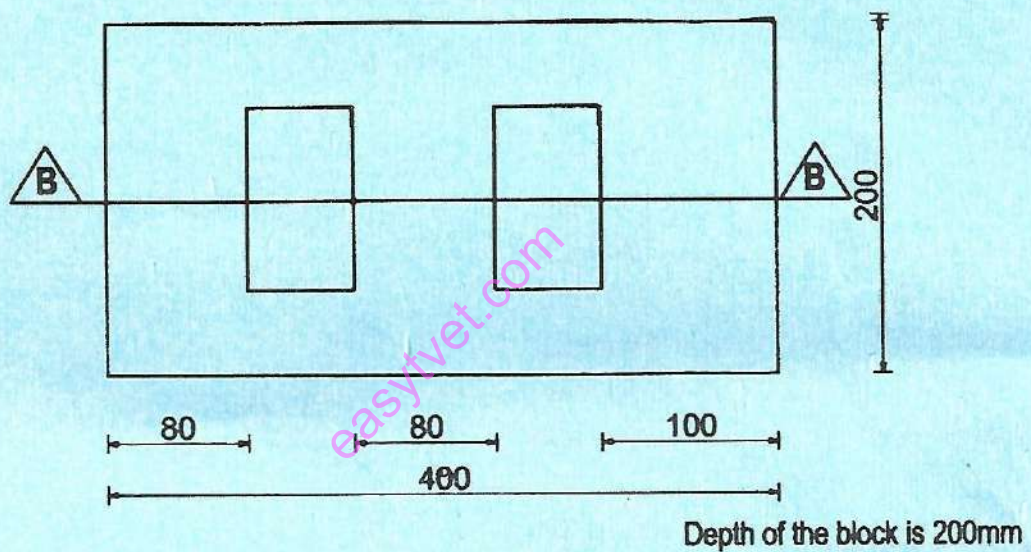
(8 marks)

### SECTION B: DRAWING

Answer at least *TWO* questions from this section.

5. (a) **Figure 1** shows a plan of a hollow block. To a scale of 1:2 draw section B-B.

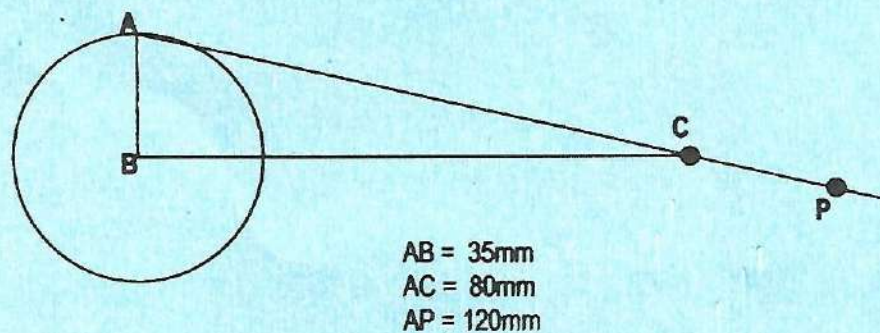
(8 marks)



**FIGURE 1**

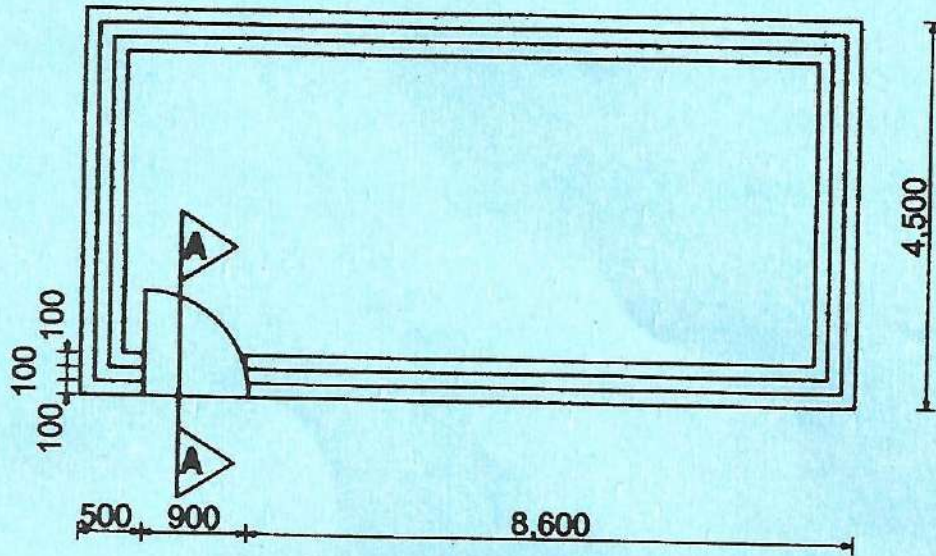
(b) **Figure 2** shows a plane figure. Draw the locus of point P through one complete revolution using the data given.

(12 marks)



**FIGURE 2**

6. **Figure 3** shows the plan of a building. To a scale of 1:25 draw section A-A from the foundation to the ring beam using the data provided.



**FIGURE 3**

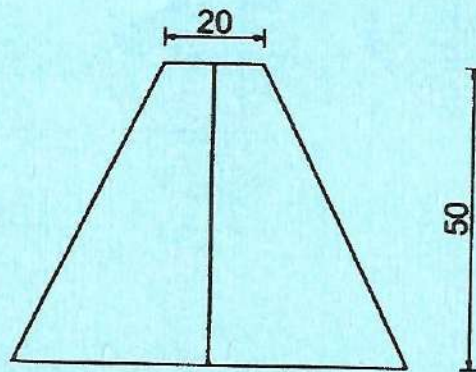
wall leaf thickness	100 mm
cavity	100 mm
foundation footing	1000 x 300 mm
hardcore fill	250 mm
blinding	50 mm
floor slab thickness	150 mm
foundation wall height	1000 mm
superstructure wall height	2100 mm
ring beam	250 x 250 mm
door height	2100 mm

Assume any other necessary information.

(20 marks)

7. **Figure 4** shows the front elevation of a hexagonal based frustrum. If the base sides are 30 mm, using first angle draw:
- (i) the front elevation;
  - (ii) a complete plan;
  - (iii) surface development.

(20 marks)

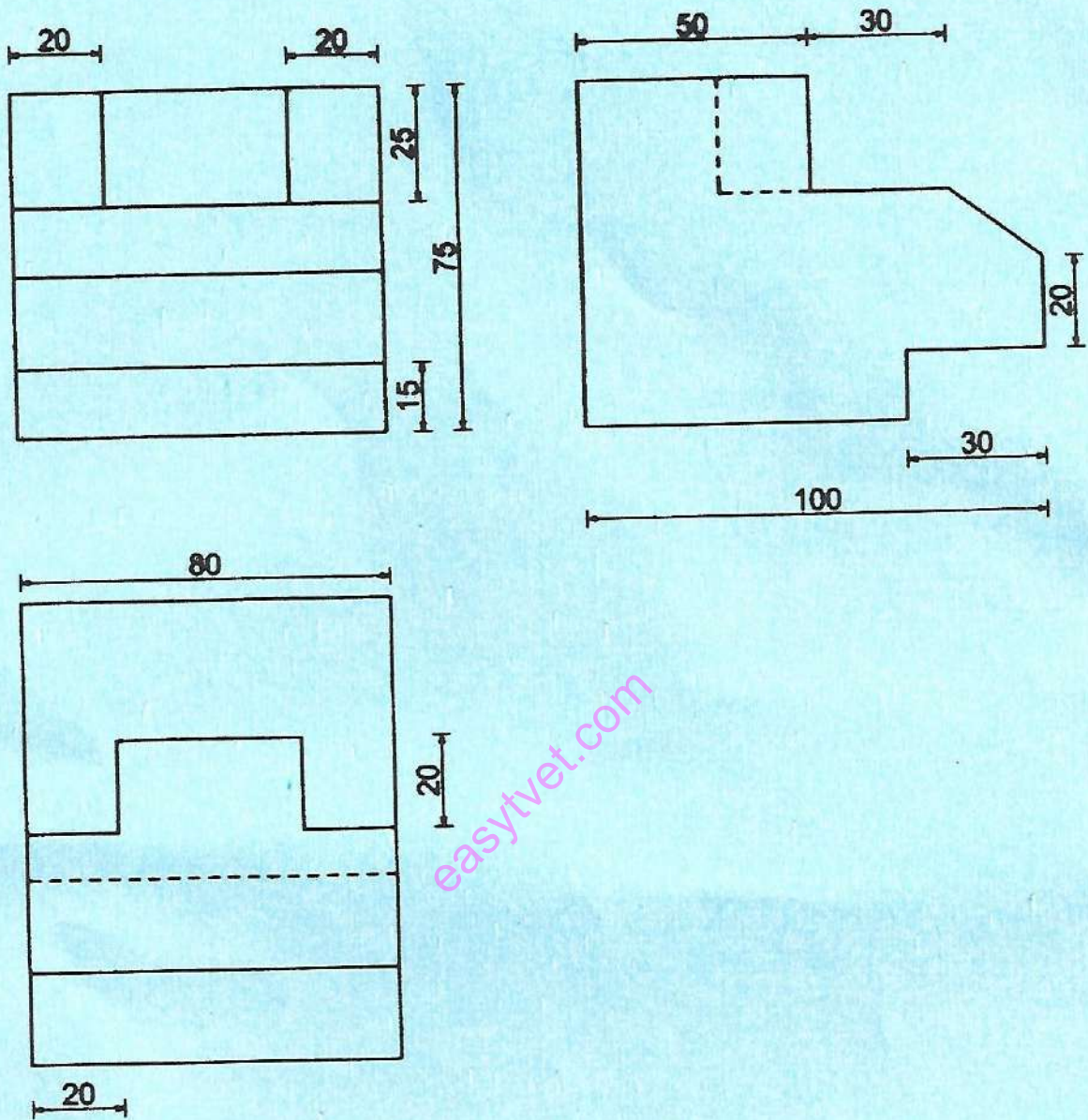


**FIGURE 4**

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45°

8. **Figure 5** shows the orthographic views of a block. Draw an isometric view of the block. (20 marks)



**FIGURE 5**

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