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**BUILDING CONSTRUCTION I, TECHNICAL
DRAWING AND CONSTRUCTION PLANT**

Oct./Nov. 2021

Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

**DIPLOMA IN BUILDING CONSTRUCTION
DIPLOMA IN CIVIL ENGINEERING
DIPLOMA IN ARCHITECTURE**

MODULE I

**BUILDING CONSTRUCTION I, TECHNICAL DRAWING AND
CONSTRUCTION PLANT**

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Answer booklet;

Drawing paper size A3;

Scientific calculator.

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

*Answer **FIVE** questions choosing **TWO** questions from section **A**, **TWO** questions from section **B** and **ONE** question from section **C**.*

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 (40 marks)

Answer TWO questions from this section.

1. (a) List **six** preliminary activities. (3 marks)
- (b) With the aid of a sketch describe a partition profile. (7 marks)
- (c) Explain how a datum is fixed on site. (6 marks)
- (d) Describe a building line. (4 marks)
2. (a) State **five** factors that determine the degree of timbering to a trench. (5 marks)
- (b) Sketch a pictorial timbering details in a water logged ground. (5 marks)
- (c) With the aid of a sketch describe a short bored pile foundation detail. (10 marks)
3. (a) With the aid of a sketch describe a cantilever underpinning pile arrangement. (9 marks)
- (b) State **four** functional requirements of ground floors. (4 marks)
- (c) Sketch a semi-circular arch and show the following:
 - (i) haunch;
 - (ii) crown;
 - (iii) soffit;
 - (iv) extrados;
 - (v) springer;
 - (vi) springing point.(7 marks)

SECTION B: TECHNICAL DRAWING (40 marks)

Answer *TWO* questions from this section.

4. **Figure 1** shows two square tubes intersecting at 60° .

- (i) Complete the line of intersection.
- (ii) Draw the plan of the assembly.
- (iii) Draw the development of the small square tube.

(20 marks)

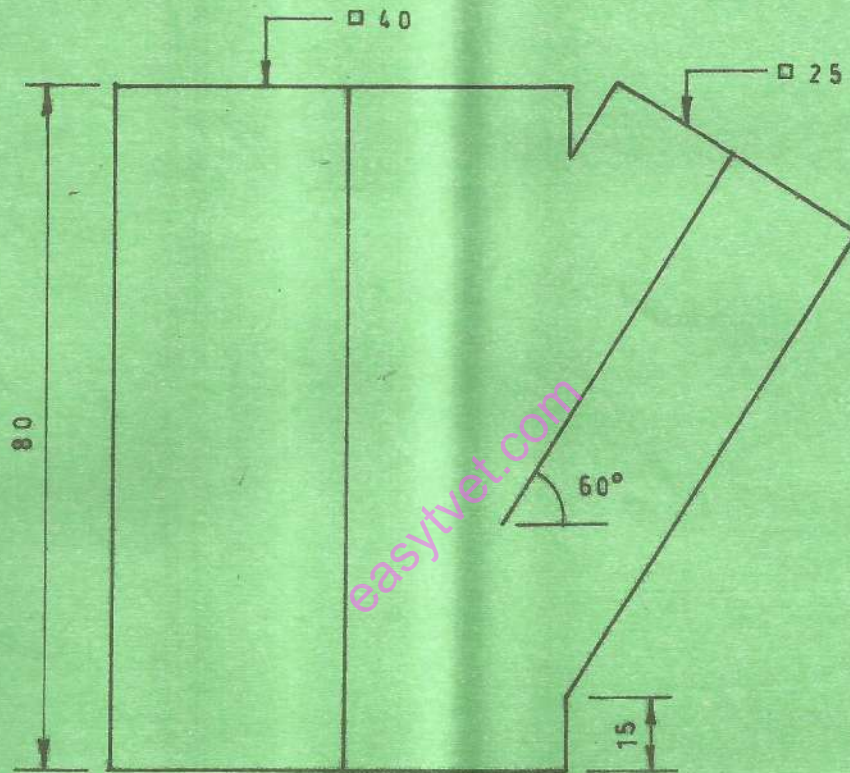


Fig. 1

5. **Figure 2** shows the plan and elevation of a truncated cone with cutting plane y-y parallel to the slant edge.

(i) complete the plan;

(ii) draw the true shape of the cut face.

(20 marks)

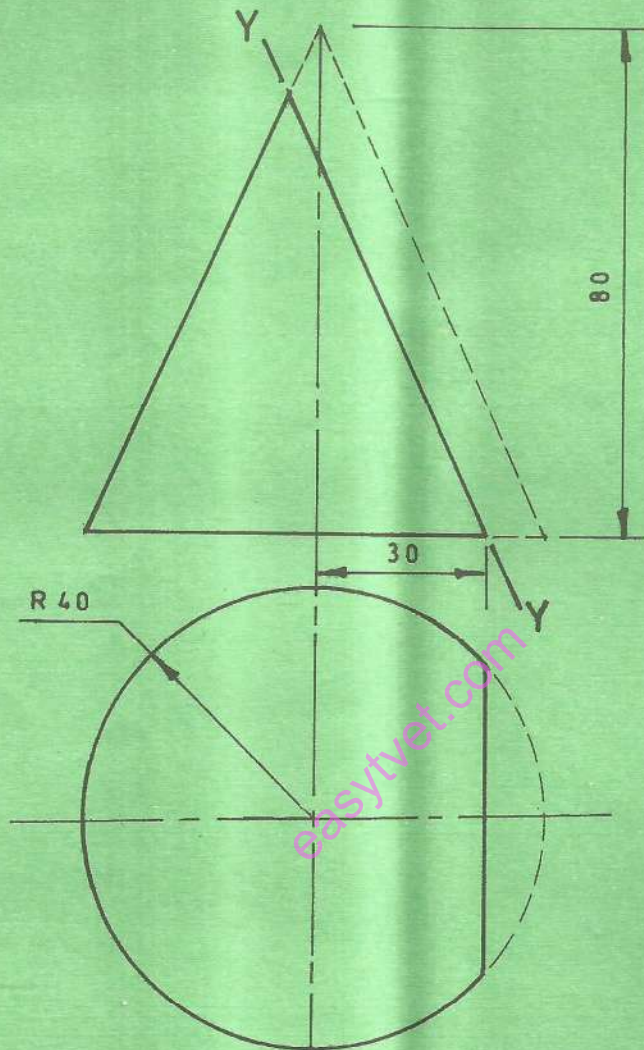


Fig.2

6. **Figure 3** shows a shaped block drawn in pictorial view. Project the views of the block in 3rd angle. (20 marks)

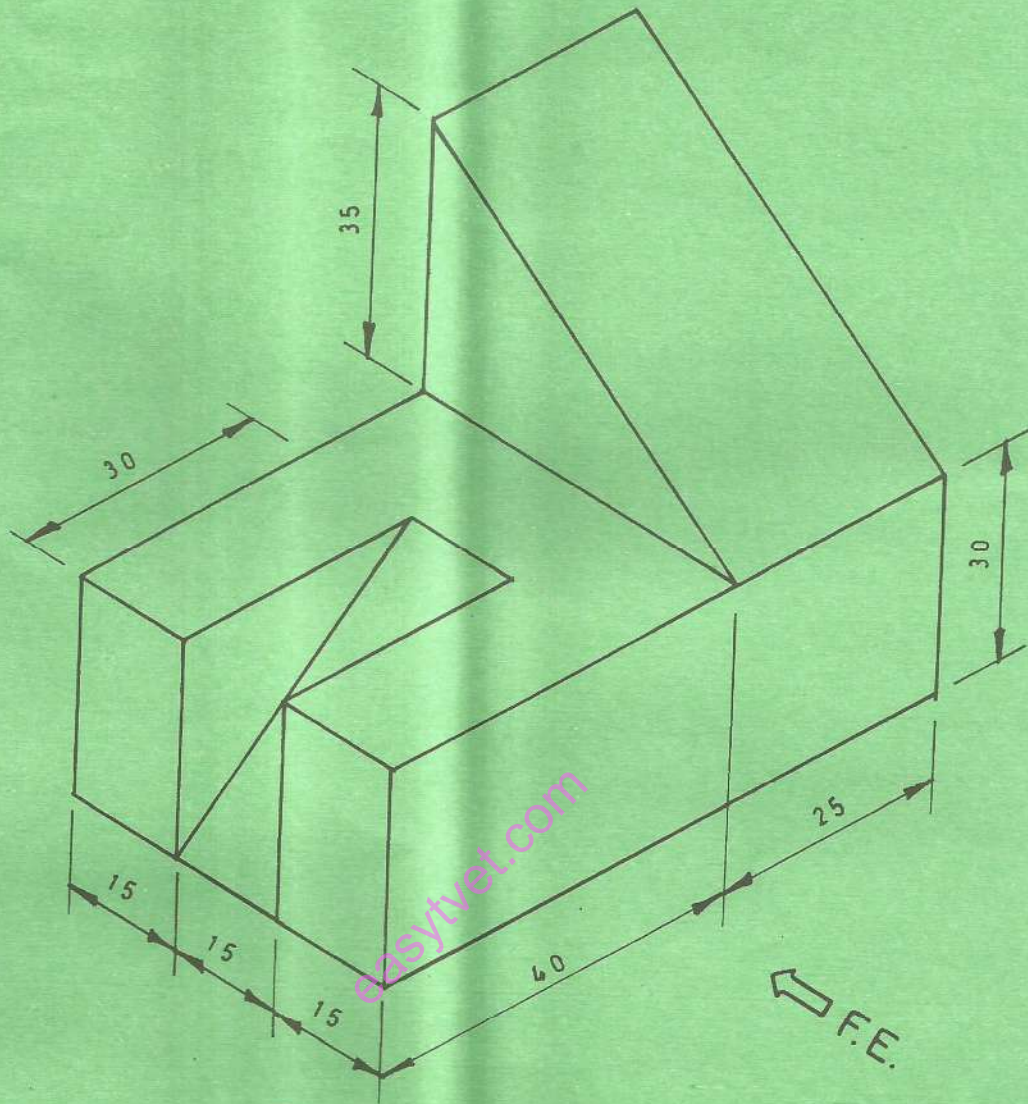


Fig. 3

SECTION C: CONSTRUCTION PLANT

Answer ONE question from this section.

7. (a) Explain how the output of a tractor hovel can be determined. (4 marks)
- (b) With the aid of a sketch, explain the operation of a drag line. (8 marks)
- (c) Sketch a single acting diesel hammer. (8 marks)
8. (a) With the aid of a sketch, describe a pan mixer. (6 marks)
- (b) Sketch a tower crane. (6 marks)
- (c) With the aid of a sketch, explain the operation of a floating screed paver. (8 marks)

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