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

June/July 2020

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;

Scientific calculator;

Drawing instruments.

*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) State **six** activities involved in site clearance. (6 marks)
- (b) Explain the significance of a good site layout. (4 marks)
- (c) Illustrate the use of spirit level and straight edge method in levelling. (4 marks)
- (d) Sketch a partition profile board to show all the important markings. (6 marks)
2. (a) With the aid of a sketch describe the grid iron system of sub soil drainage. (8 marks)
- (b) Sketch a sectional elevation of timbering to trenches in dry loos soils. (8 marks)
- (c) State **four** requirements of anti termite chemicals. (4 marks)
3. (a) Explain the function of a foundation. (3 marks)
- (b) With the aid of a sketch describe an up-stand beam raft foundation. (9 marks)
- (c) Sketch a section of a timber wall in pictorial view to show the following:
- (i) studs;
 - (ii) sole plate;
 - (iii) noggings;
 - (iv) head plate.
- (8 marks)

SECTION B: TECHNICAL DRAWING (40 marks)

Answer TWO questions from this section.

4. (a) **Figure 1** shows a block in isometric. Draw the views of the block in third angle projection. (8 marks)

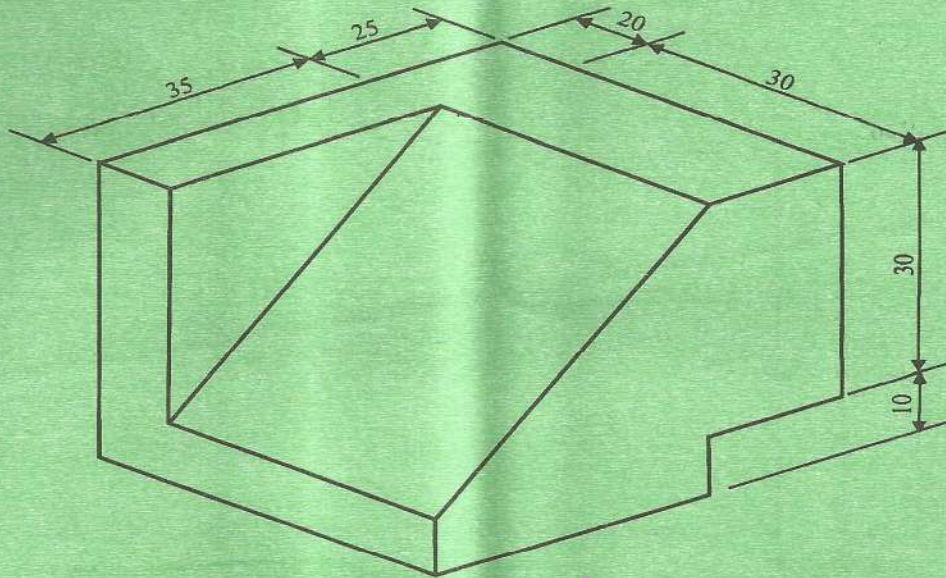


Fig. 1

- (b) **Figure 2** shows views of a block in first angle projection. Draw the block in isometric with point *x* as the lowest. (12 marks)

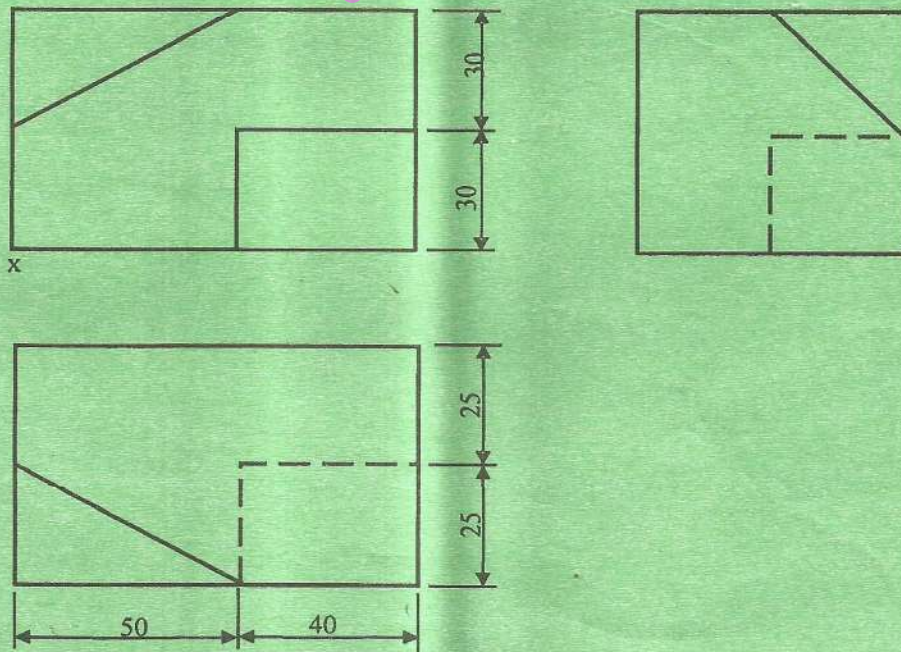


Fig. 2

5. (a) Construct an ellipse in a rectangle of sides 100 mm by 80 mm. (8 marks)
- (b) **Figure 3** shows two pipes intersecting at 45° .
- (i) complete the curve intersection;
- (ii) draw the surface development of the smaller pipe.

(12 marks)

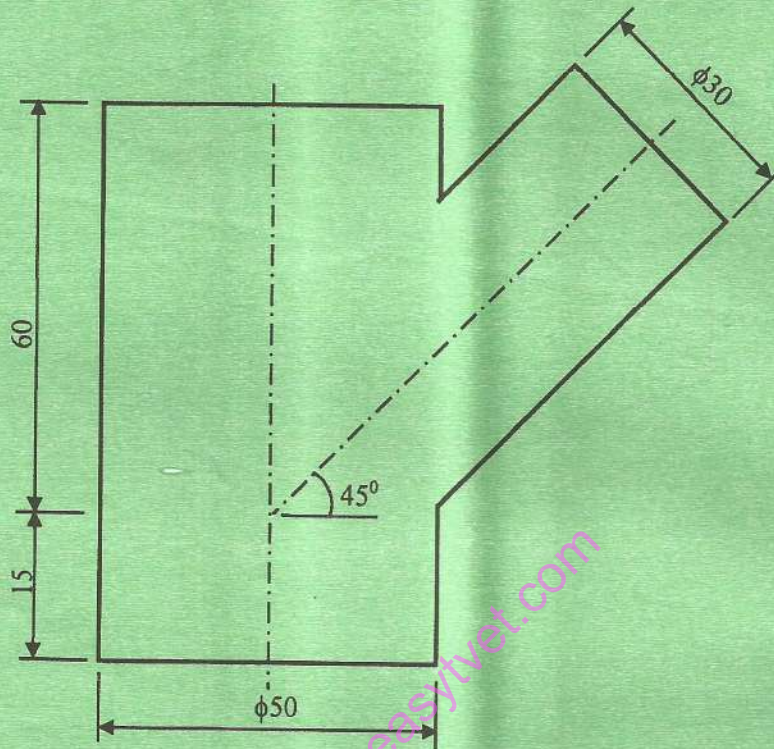


Fig. 3

6. (a) Figure 4 shows the plan and front elevation of a truncated cone. Draw:

- (i) the given views;
- (ii) the true shape of the cut face.

(10 marks)

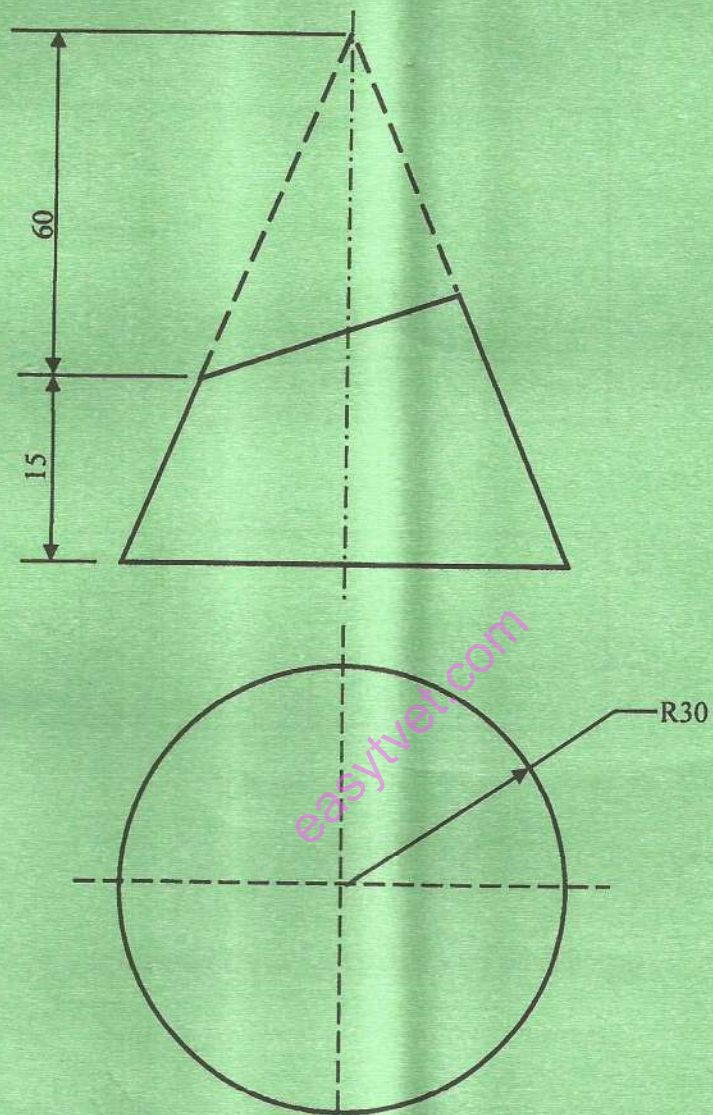


Fig. 4

(b) **Figure 5** shows the plan and the front elevation of a block in a first angle projection. Draw the block in second perspective if:

- (i) VP_1 and VP_2 are 80 mm and 120 mm to the left and right of A-A respectively;
- (ii) Horizon is 70 mm above ground level and picture plane is 100 mm above ground level.

(10 marks)

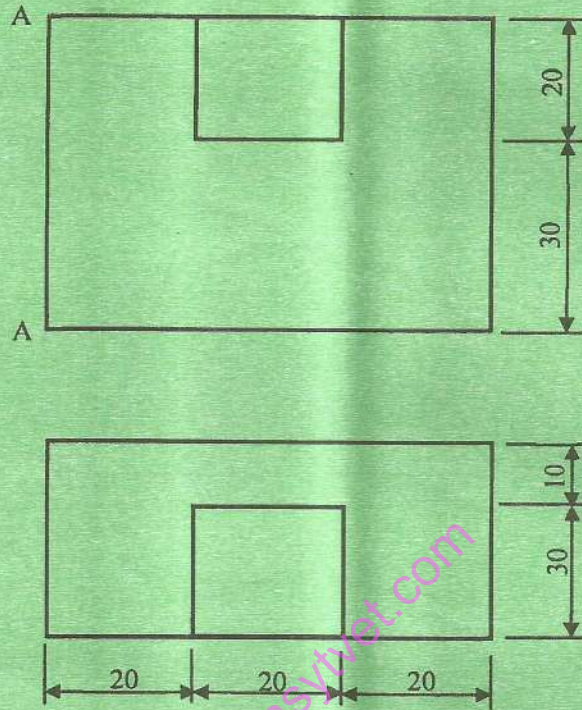


Fig. 5

SECTION C: CONSTRUCTION PLANT

Answer **ONE** question from this section.

- 7. (a) State **four** factors that determine the output of excavating plant. (4 marks)
- (b) With the aid of a sketch, describe a skimmer. (10 marks)
- (c) Explain the operation of a scraper. (6 marks)
- 8. (a) Describe a standard dumper. (4 marks)
- (b) Sketch a static crane. (8 marks)
- (c) With the aid of a sketch, explain the operation of a floating screed paver. (8 marks)

Handwritten notes:
 ✓ Type of the soil
 ✓ Type of work
 ✓ Condition of the excavating plant
 ✓ Last page
 ✓ It is an earth moving machine used for soft soil operations.
 ✓ The body of scraper is lowered in order to fill the soil and the bulldozer pushes it in order to fill the body.

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