Name: _____ Index No: _____/_____

2705/105 2709/105
2707/105
BUILDING CONSTRUCTION I,
TECHNICAL DRAWING AND
CONSTRUCTION PLANT
Oct./Nov. 2012
Time: 3 hours

Candidate's Signature: _____

Date: _____

THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN BUILDING TECHNOLOGY
DIPLOMA IN CIVIL ENGINEERING
DIPLOMA IN ARCHITECTURE
MODULE I

BUILDING CONSTRUCTION I, TECHNICAL DRAWING AND CONSTRUCTION PLANT

3 hours

INSTRUCTIONS TO CANDIDATES

Write your name and index number in the spaces provided above.
Sign and write the date of the examination in the spaces provided above.
You should have the following for this examination.

Drawing paper size A2;
Drawing Instruments;
Metric Scale rule.

*This paper consist of **EIGHT** questions in **THREE** sections; **A, B** and **C**.*
*Answer **FIVE** questions choosing **TWO** from section **A**, **TWO** from section **B** and **ONE** from section **C**.*
All questions carry equal marks.
Maximum marks for each part of a question are as shown.
All dimensions are in millimeters.

For Examiner's Use Only

Question	1	2	3	4	5	6	7	8	TOTAL
Marks									

This paper consists of 16 printed pages.

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

Turn over

SECTION A

Answer any TWO questions from this section.

1. (a) (i) State **four** reasons carrying out site investigation.

(ii) With the aid of a sketch explain trial pits/holes method of soil exploration.

(8 marks)

(b) With the aid of a sketch outline the procedure of setting out a building.

(6 marks)

(c) Using sketches explain the following methods of ground levelling.

(i) cut method;
(ii) fill method;
(iii) cut and fill method.

(6 marks)

2. (a) (i) A simple domestic dwelling is to be constructed on a site with a gravel sub soil. Design

- width of the foundation slab
- depth of the foundation and
- the projection given the following information
  - maximum load transmitted through the wall = 60 kN/m
  - safe bearing capacity of compacted gravel sub=soil = 100 N/m2
  - width of the wall = 200 mm

(9 marks)

(ii) With the aid of a sketch explain the use of a profile board in control of the width of trench, wall and depth of the foundation.

(5 marks)

(b) Using sketches show how damp proof membrane are used to prevent passage of moisture on wall under the following conditions:

(i) moisture penetration from below;
(ii) moisture penetration from above;
(iii) moisture penetration from horizontal entry.

(6 marks)

3. (a) (i) Outline **four** design principle to be considered when constructing a fire place.

(ii) With the aid of a labelled sketch, explain the following terminologies used in chimney construction:

- flue;
- gathering;
- hearth;
- throat.

(12 marks)

(b) Sketch and label a section of suspended timber ground floor. (4 marks)

(c) Explain the procedure of fixing timber door frame after construction of masonry wall. (4 marks)

SECTION B

*Answer any **TWO** questions from this section.*

4. Fig.1 shows three views of a block. Make full size Isometric drawing of the block taking corner "A" as the lowest point. (20 marks)

5. Fig.2 shows three inter penetrating pipes. Construct the curves of interpenetrating pipes. Construct the curve of interpenetration between the intersecting pipe. (20 marks)

6. (a) Draw a rectangle equal in area to triangle ABC where AB = 60mm, AC = 70 mm and BC = 65 mm.

(b) Draw a circle to touch three points XYZ whose distances are XY = 45 mm, YZ = 50mm and XZ = 65 mm. (12 marks)

(c) Construct a rectangular hexagon within 80mm diameter circle.
The corners of the hexagon must all be on the circumference of the circle. (8 marks)

SECTION C

*Answer any **ONE** questions from this section.*

7. (a) State **six** reasons for using construction plants. (6 marks)

(b) (i) With the aid of a labelled, sketch describe a bulldozer.
(ii) State **five** main functions of a bulldozer. (14 marks)

8. (a) (i) List **four** types of concreting plants.

(ii) Briefly explain how the following factors effects the selection of a concreting plant
- mixing
- transportation
- placing (11 marks)

(b) With the aid of a sketch, describe the following types of cranes:

(i) mobile crane;
(ii) static crane;
(iii) tower crane. (9 marks)

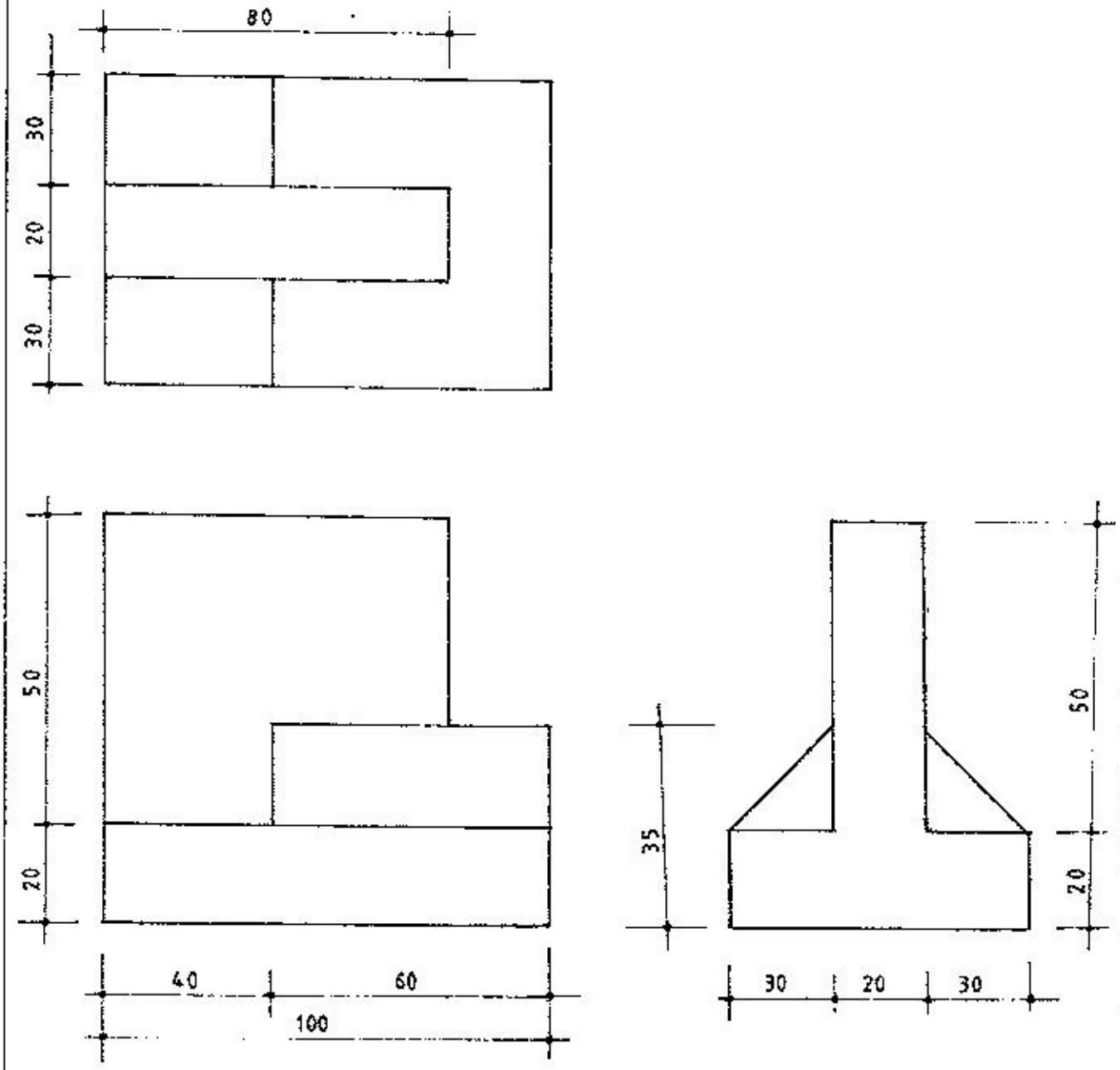

Fig. 1

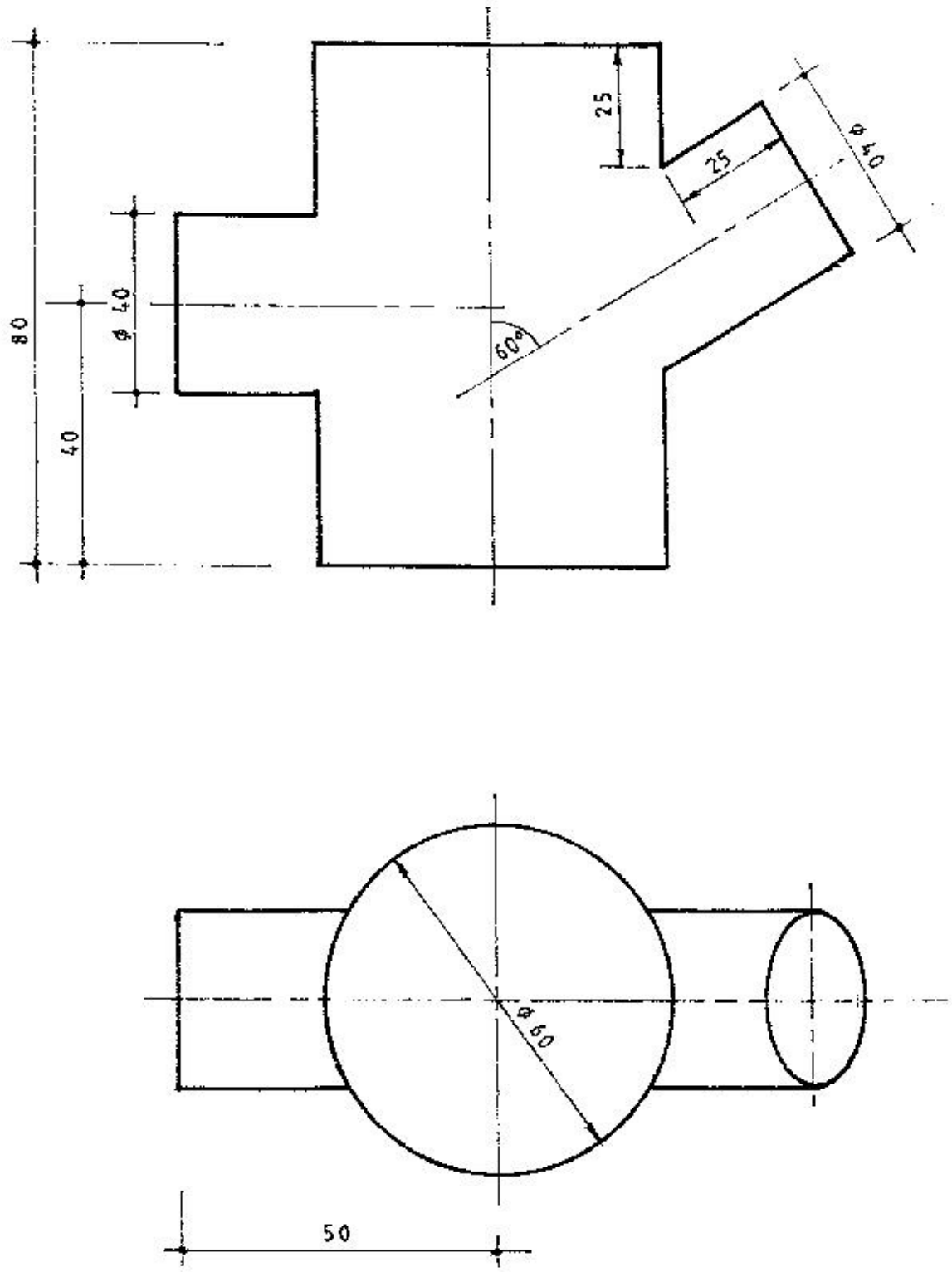

Fig. 2