

Name: _____ Index No: _____/_____

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Candidate's Signature: _____

Date: _____

**BUILDING CONSTRUCTION I
TECHNICAL DRAWING AND
CONSTRUCTION PLANT**
Oct/Nov. 2013
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

**DIPLOMA IN BUILDING TECHNOLOGY
DIPLOMA IN CIVIL ENGINEERING
DIPLOMA IN ARCHITECTURE**

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 A3;
- Scientific calculator.

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

Answer TWO questions in section A, TWO questions from section B and ONE question in section C in the spaces provided and drawing paper where necessary.

All questions carry equal marks.

Marks for each part of a question are indicated.

Candidates should answer all the questions in English.

For Examiner's Use Only

Section	Question	Maximum Marks	Candidate's Score
A			
B			
C			
TOTAL SCORE			

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.

SECTION A: BUILDING AND CONSTRUCTION I

Answer any TWO questions from this section.

1. (a) State;

- (i) **five** items that may be considered in site clearance.
 (ii) **two** methods of clearing a construction site.

(7 marks)

(b) Figure 1 below shows a sloping site.



Fig. 1

- (i) Describe **two** methods of achieving a level foundations trench.
 (ii) Sketch and label the most economical foundation that may be used in this situation.

(5 marks)

(c) State any **five** factors that may determine the method of excavating foundations.

(5 marks)

(d) Sketch and label a 'moat' method of dewatering a site.

(3 marks)

2. (a) Describe any **four** forms of wall construction.

(10 marks)

(b) Figure 2 below is a free standing wall. Sketch the wall and show three ways of preventing moisture from penetrating the wall.

(5 marks)

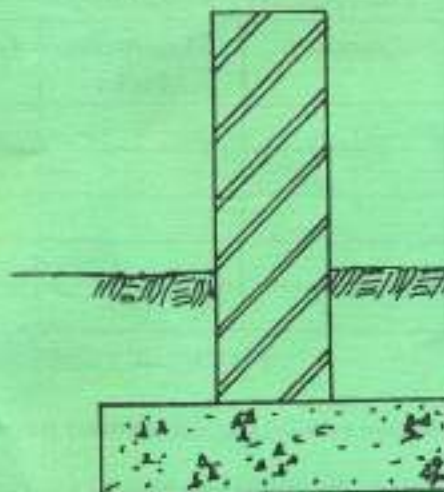


Fig. 2



- (c) State **five** advantages of dimensional co-ordination in the building co-ordination in the building industry. (5 marks)
3. (a) Outline **four** factors to be considered when designing a chimney flue. (12 marks)
- (b) Sketch and label a timber ground floor. (8 marks)

SECTION B: TECHNICAL DRAWING

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

4. (a) The pictorial drawing in **figure 3** indicates the shape of a component with a single view. Using first angle projection:
Draw:
- (i) the front elevation;
(ii) the plan;
(iii) the left elevation;
(iv) the right elevation.

(10 marks)

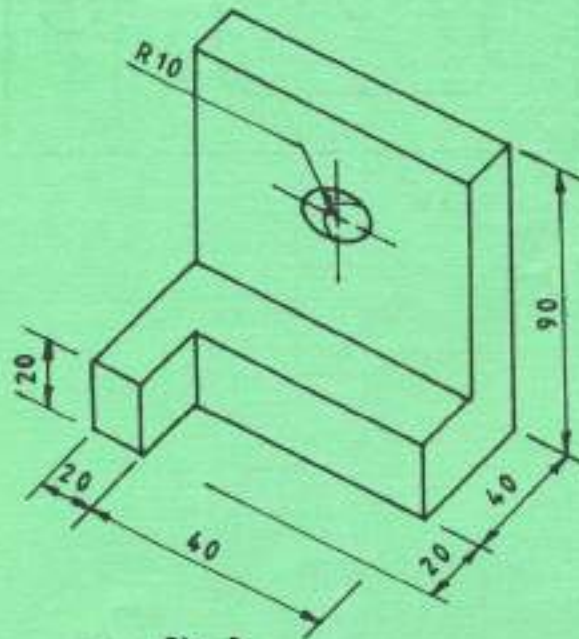


Fig. 3



- (b) **Figure 4** shows front elevation and plan of a machine mounting block. Using free hand, sketch an isometric view of the mounting. (10 marks)

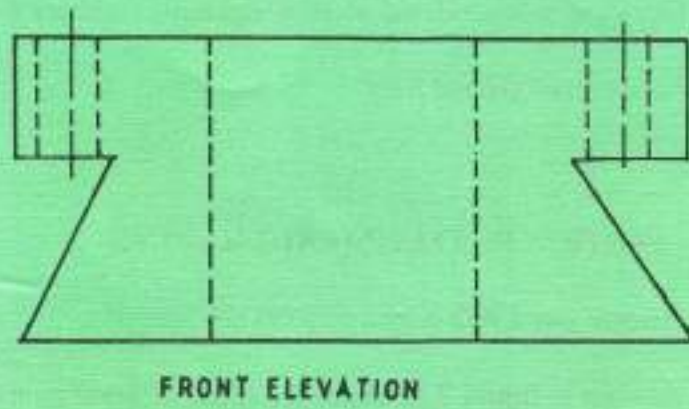


Fig. 4



5. Figure 5 is a frustum of a right square based pyramid.
Draw:

- (i) the plan of the frustum;
- (ii) the development of the frustum.

(20 marks)

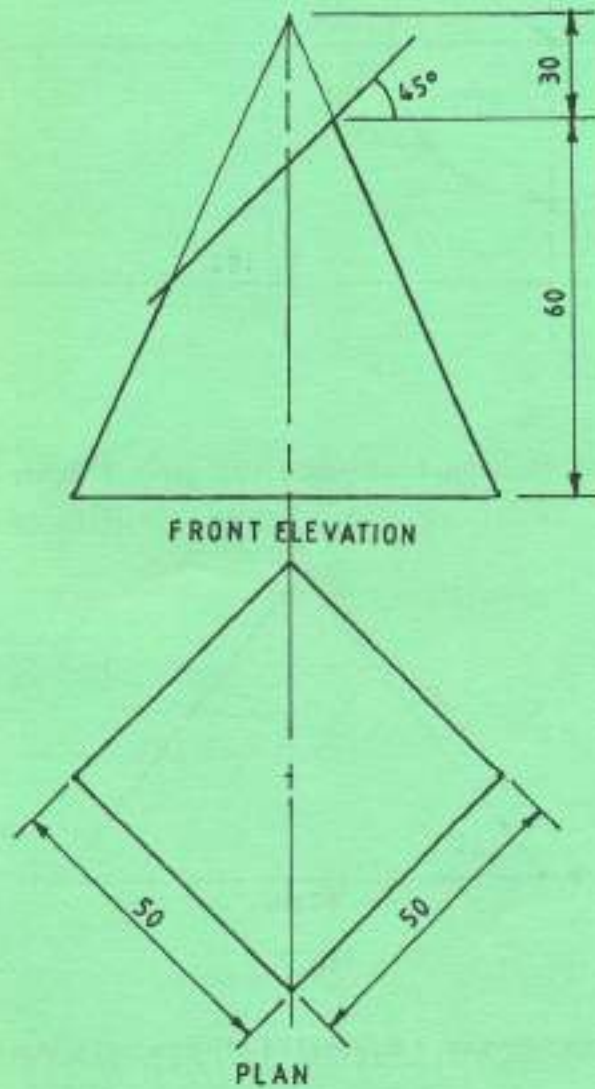


Fig. 5



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6. (a) Draw a tangent to a circle from a point 'P' that is 100 mm from the centre of the circle as in figure 6. (5 marks)

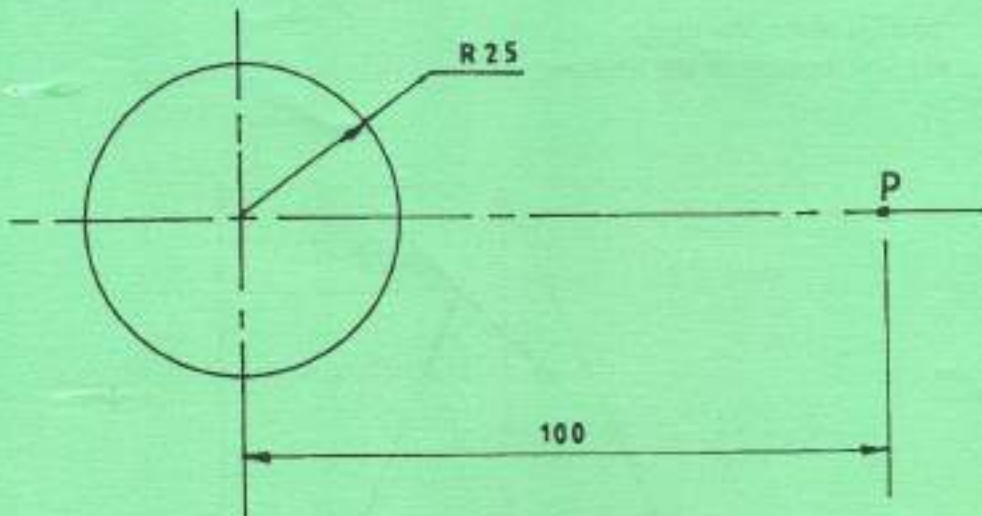


Fig. 6

- (b) Construct a triangle similar to triangle ABC given in figure 7 below. (5 marks)

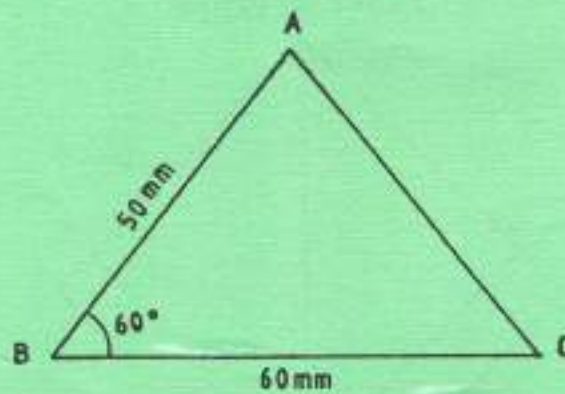


Fig. 7

- (c) Construct a rectangle with a diagonal of 110 mm and one side 70 mm long. (5 marks)

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- (d) Construct a pentagon from the given circle in figure 8.

(5 marks)

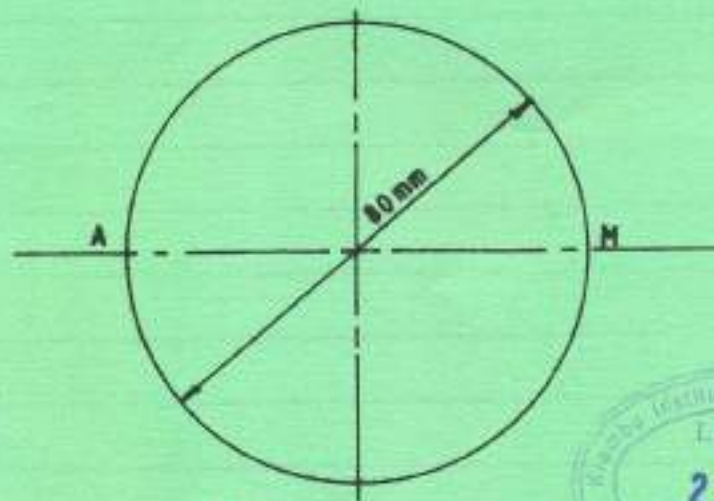


Fig. 8



SECTION C: CONSTRUCTION PLANT

Answer ONE question from this section.

7. (a) State **five** factors affecting the selection of excavation plants. (5 marks)
- (b) Briefly describe the following excavating plants:
- dragline;
 - face shovel.
- (10 marks)
- (c) Explain the main function of transporting plant in the construction site. (3 marks)
- (d) List **four** types of transporting equipment in the construction industry. (2 marks)
8. (a) Outline **three** types of plant maintenance. (9 marks)
- (b) State **five** reasons for using plant in the construction industry. (5 marks)
- (c) (i) Sketch the arrangement of wheels in pneumatic rollers. (6 marks)
- (ii) Briefly explain the operation and features of the roller in c(i) above.
- (iii) State any **two** situations where the the pneumatic roller is used.