



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

**QUANTITY SURVEYING/CIVIL ENGINEERING/VALUATION AND ESTATE
MANAGEMENT/WATER RESOURCES AND IRRIGATION ENGINEERING**

**SUBJECT: Civil Engineering Drawing and
Construction**

PAPER NO: 313/13/S08

DURATION: 4 hours

MARCH/APRIL 2021 EXAMINATION

REQUIREMENTS

1. Answer booklet.
2. Drawing set
3. A3 drawing paper

INSTRUCTIONS TO CANDIDATE

1. Section A – Answer two (2) questions.
2. Section B – Answer two (2) questions.

This paper consists of 4 printed pages.

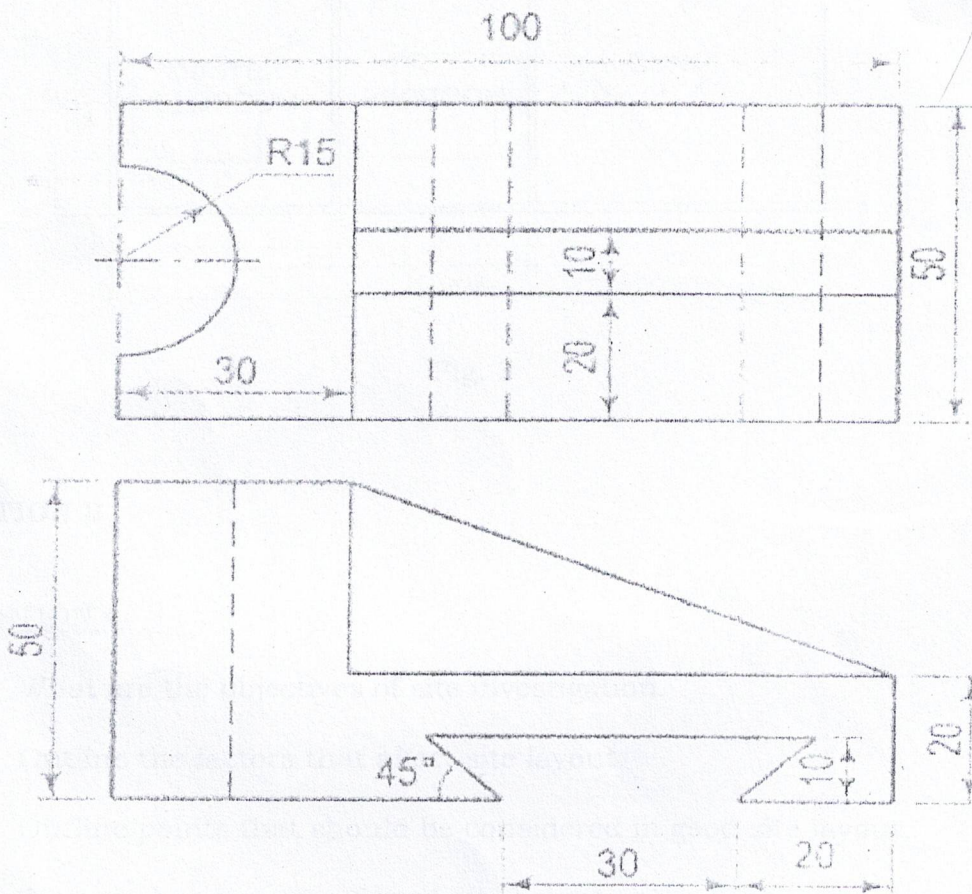
SECTION A

QUESTION 1

A stone is thrown from a building 7m high and at its highest flight it just crosses a palm tree 14m high. Trace the path of the stone, if the distance between the building and the tree measured along a flat ground is 3.5m. (25 marks)

QUESTION 2

Draw the isometric view for the orthographic projection shown in the figure below.



(25 marks)

QUESTION 3

Reproduce the plan in Fig. Q3.

(25 marks)

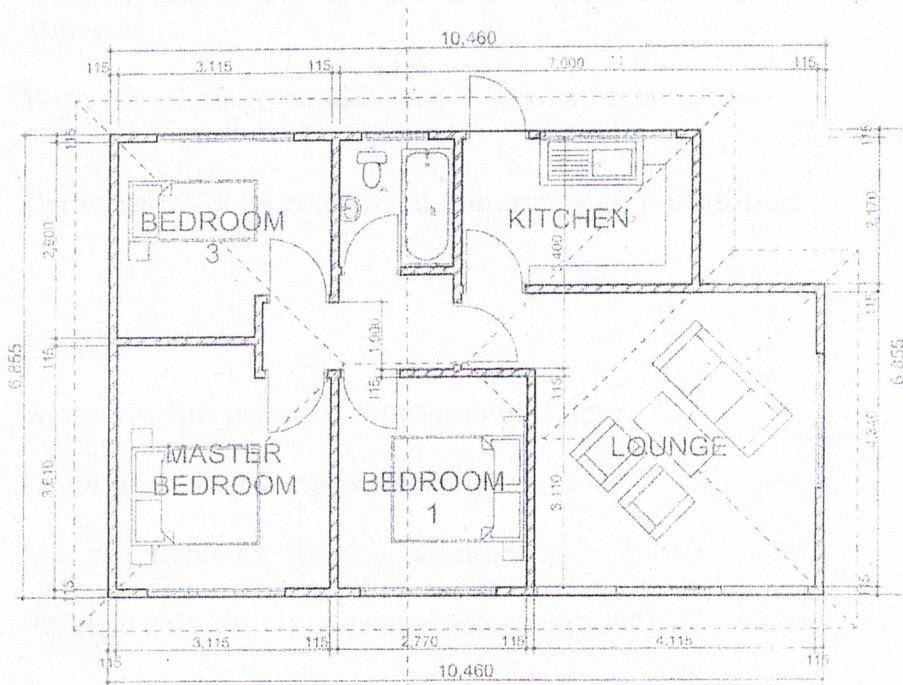


Fig. 3

(25 marks)

SECTION B

QUESTION 4

- What are the objectives of site investigation. (10 marks)
- Outline the factors that affect site layout. (5 marks)
- Outline points that should be considered in good site layout. (5 marks)
- State the advantages of good site layout. (5 marks)

QUESTION 5

- a) Outline the primary functions of a staircase. (5 marks)
- b) With the aid of a clearly labelled diagram illustrate a timber straight flight staircase. (10 marks)
- c) With aid of diagrams illustrate any two step formats. (5 marks)
- d) Draw and label a reinforced concrete pad foundation. (5 marks)

QUESTION 6

- a) What are the primary functions of a floor. (2 marks)
- b) Draw and label a suspended timber floor. (8 marks)
- c) List any three (3) types of scaffolding. (3 marks)
- d) Illustrate the independent scaffolding and label clearly. (7 marks)
- e) State any five types of doors. (5 marks)

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