



ZIMBABWE

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

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

AUTOMATIVE ENGINEERING DRAWING

MODULE: Engineering Drawing

PAPER NO: 346/21/S04

DURATION: 3 Hours

NOVEMBER/DECEMBER 2025 EXAMINATION

REQUIREMENTS

- 1) A3, A4 ruled paper
- 2) Drawing instruments
- 3) Pencil/ rubber

INSTRUCTIONS TO CANDIDATE

- 1) Answer all question: Section A (10 marks).
- 2) Section B (50 marks) answer any five (5) questions.
- 3) Section C (40 marks) compulsory question.

This paper consists of 5 printed pages.

QUESTION 1

- 1.1 Define Engineering drawing (1 mark)
- 1.2 Explain the term Isometric Drawing? (1 mark)
- 1.3 In engineering terms, the abbreviation S'FACE means---- (1 mark)
- 1.4 State any two (2) features not normally sectioned even though they may lie in the section plane. (2 marks)
- 1.5 What is plane geometry? (1 mark)
- 1.6 The part of a circle enclosed by a chord on an arc is called---- (1 mark)
- 1.7 Name two (2) types of dimensioning systems used in engineering drawing. (2 marks)
- 1.8 What is the size of an A2 drawing paper. (1 mark)

SECTION B: ANSWER ALL QUESTIONS (50 MARKS) *CHOOSE ANY 5*

QUESTION 2

State applications for the following types of lines:

- a) Thin continuous line
 - b) Thick continuous line
 - c) Short-dashes-medium
 - d) Long thin chain
 - e) Failed and short zig zag
- (10 marks)

QUESTION 3

State the BS 308 standard abbreviation for the following:

- a) Undercut
- b) Material
- c) Countersunk
- d) Screwed
- e) Square
- f) Pitch circle diameter

- g) Chamfered
- h) Centre line
- i) Hexagon

(10 marks)

SECTION B

QUESTION 4

- a) Chain
- b) Parallel
- c) Datum
- d) Auxiliary
- e) Superimposed

(2 marks)

(2 marks)

(2 marks)

(2 marks)

(2 marks)

QUESTION 5

Draw conventional symbols for the following:

- a) Square on a round bar
- b) Round tube
- c) Compression spring
- d) PCD
- e) Straight knurling

(2 marks)

(2 marks)

(2 marks)

(2 marks)

(2 marks)

QUESTION 6

Given the radius of circle as R40mm: construct a Hexagon using the compass method. (10 marks)

QUESTION 7

Construct an ellipse using the concentric circles method

Major diameter-100mm
Minor diameter 70mm

(10 marks)

QUESTION 8

Define the following:

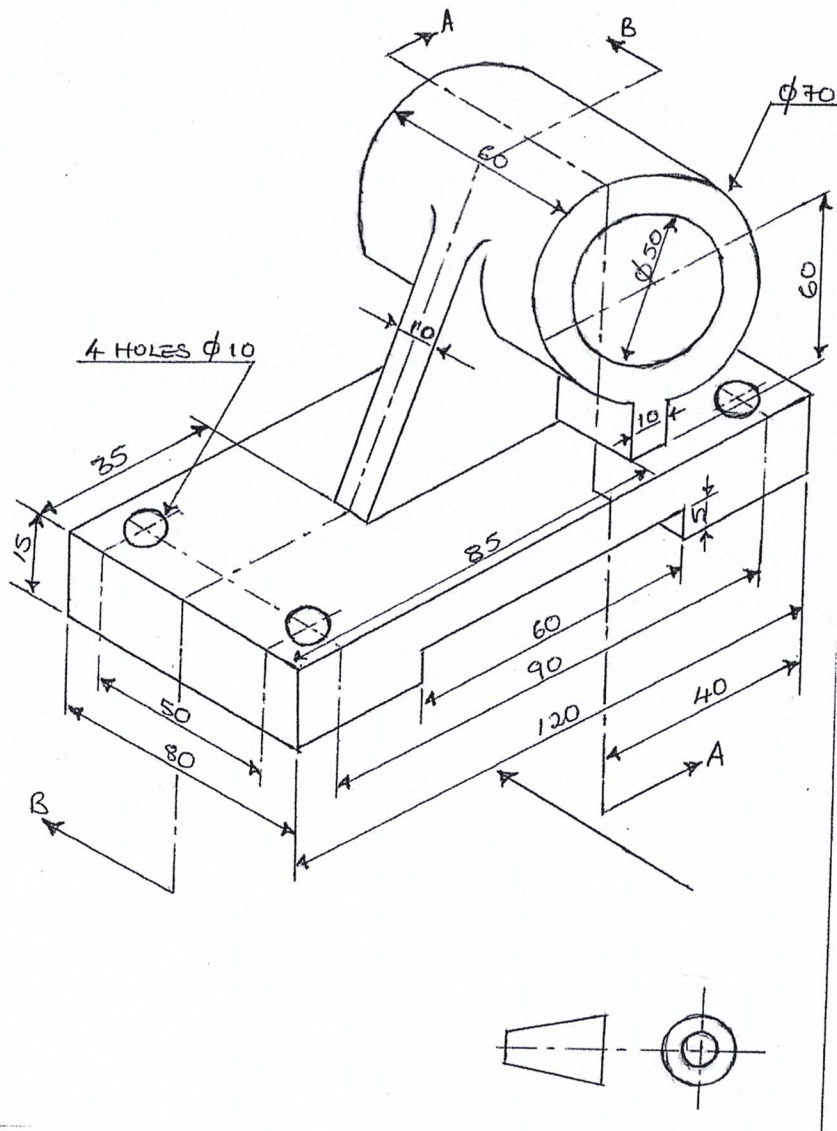
- | | |
|-----------|-----------|
| a) Rib | (2 marks) |
| b) Web | (2 marks) |
| c) Fillet | (2 marks) |
| d) Boss | (2 marks) |
| e) Circle | (2 marks) |

SECTION C: COMPULSORY QUESTION (40 MARKS)

Using a full scale 1:1, draw

- a) Sectional Front View B:B
- b) A sectional End View A:A
- c) A plan of the diagram shown in page 5. Show all hidden details.

(1)



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