UNIVERSITY OF SWAZILAND
FINAL EXAMINATION PAPER

PROGRAMME: BSC ABE II

COURSE CODE: ABE 202

TITLE OF PAPER: ENGINEERING DRAWING

TIME ALLOWED: TWO (2) HOURS

SPECIAL MATERIAL REQUIRED: BASIC DRAWING INSTRUMENTS

INSTRUCTIONS: ANSWER QUESTION ONE AND ANY TWO OTHER QUESTIONS.

DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN GRANTED BY THE CHIEF INVIGILATOR

QUESTION 1

a) Figure 1 shows an assembly drawing of a clamping device

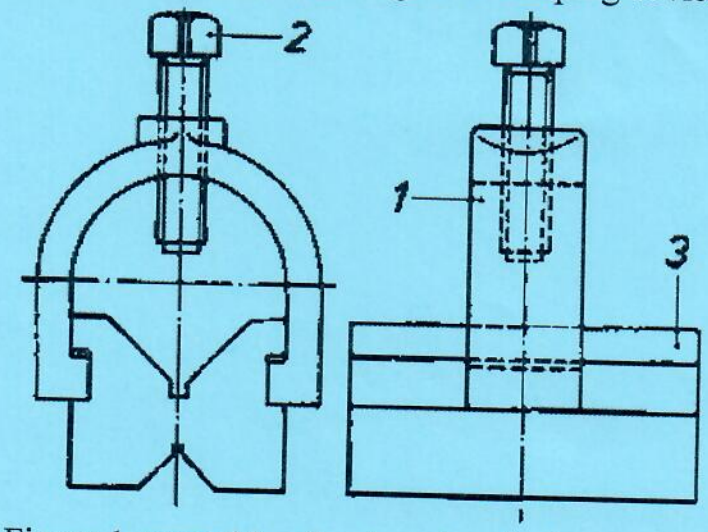
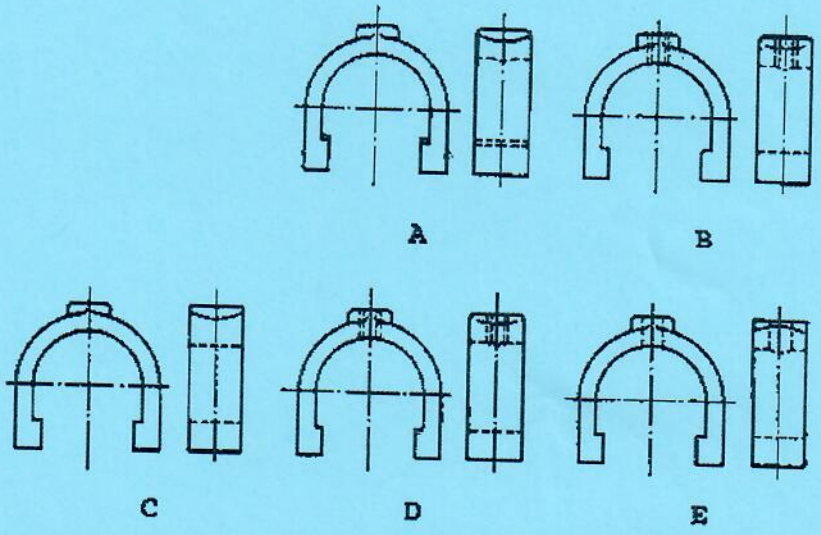


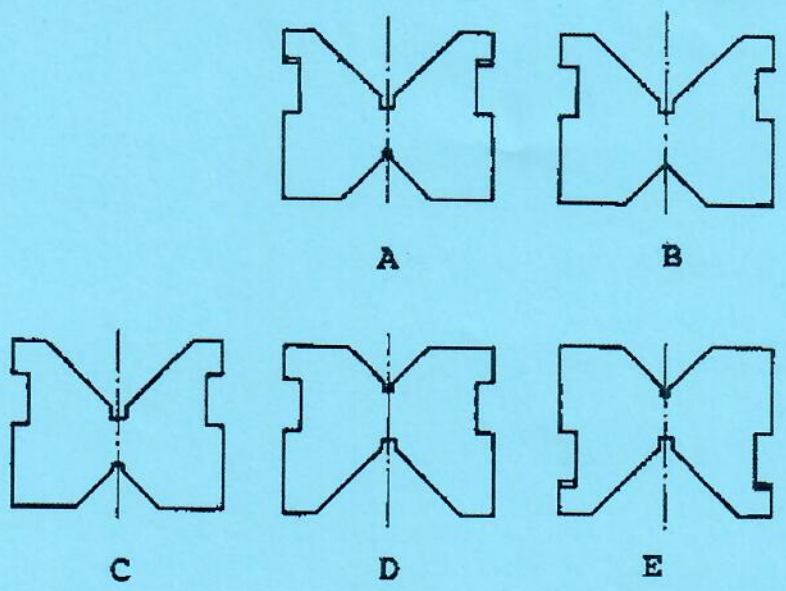
Figure 1 assembly of a clamping device of lathe.

Answer the questions that follow.

i) Which picture shows the correct representation of the clamping bow? [2 marks]



ii) Which picture shows the correct representation of the prism? [2 marks]



b) Which picture shows the correct sectional view of the workpiece in Figure 2 [3 marks]

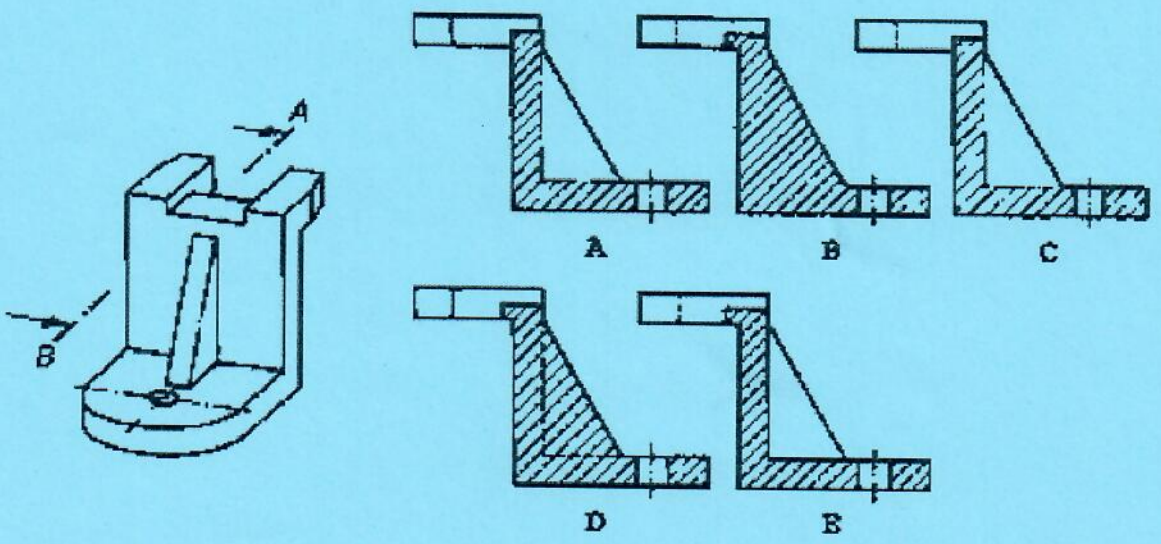


Figure 2 An isometric of a workpiece sectioned along AB

c) What is the correct plan view of the block in Figure 3. [2 marks]

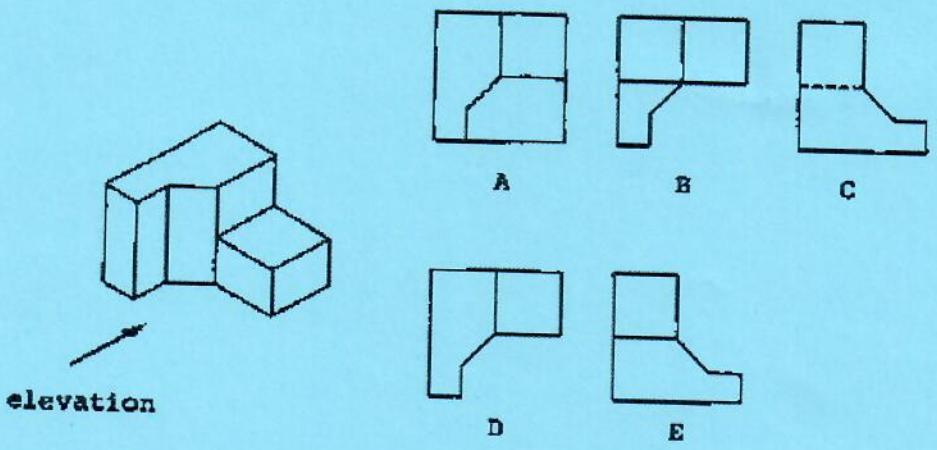


Figure 3 An isometric of a block with associated possible plan views

d) Figure 4 shows a conical piece used in a machine vice. Write the correct answer that would fit in the blank space.

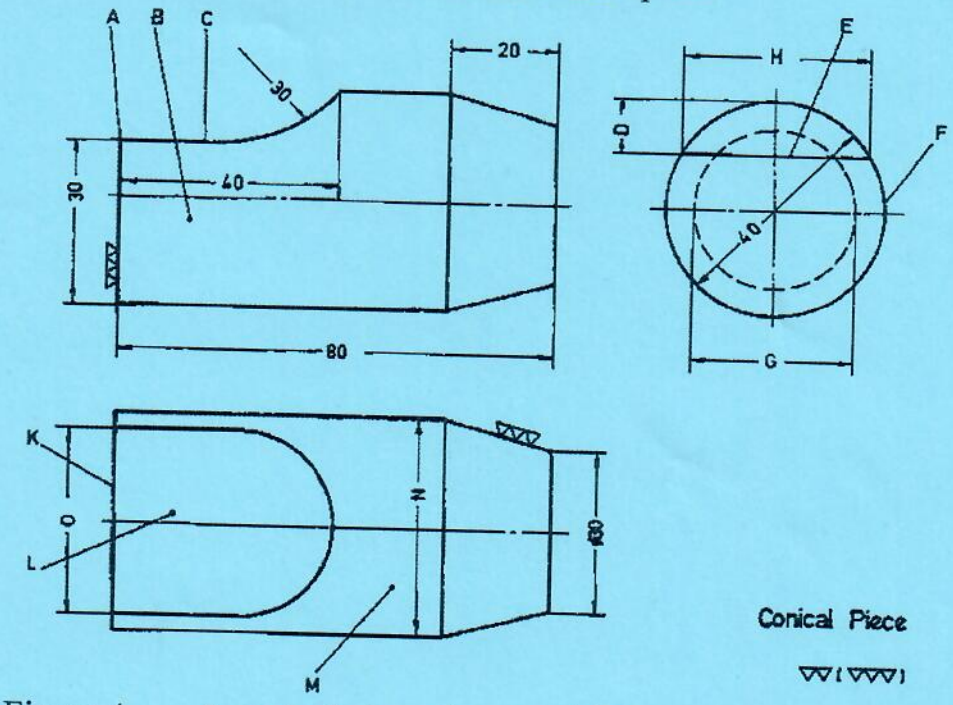


Figure 4 A conical piece for a machine vice.

i) Surface "L" (plan view) is represented in the elevation view by line..... [2 marks]

ii) Dimension "N" (plan view) is.....mm. [2 marks]

iii) Dimension "D" (side view) is.....mm. [2 marks]

iv) Surface "M" (plan view) is represented in the side view by line..... [2 marks]

v) Dimension "O" (plan view) is represented in the side view by dimension..... [2 marks]

e) Figure 5 shows an orthographic of view of a blacksmith's angle block. Draw the isometric view of the block on the provided isometric paper. Begin the drawing from the indicated start point of the isometric axes. [21 marks]

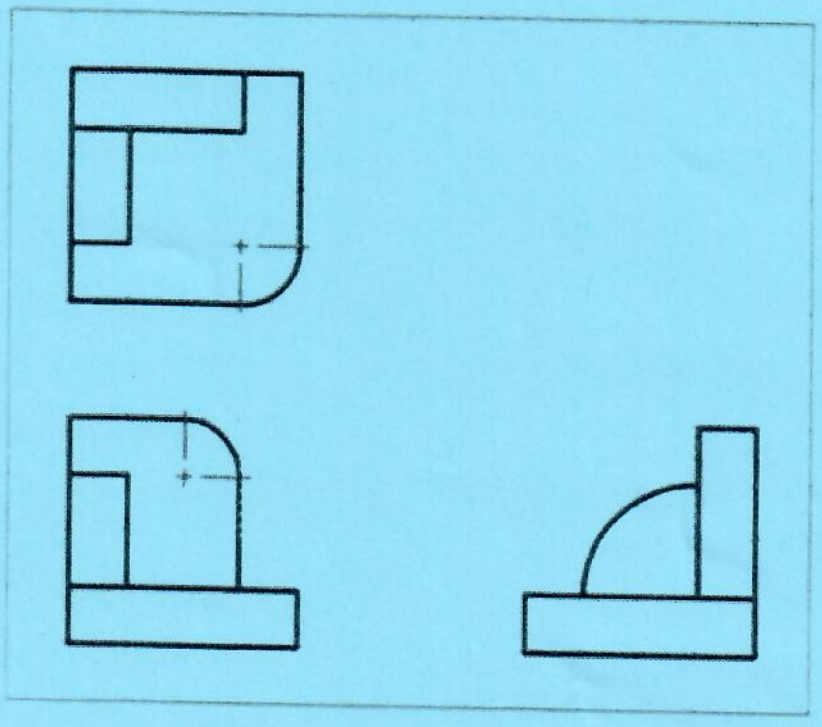


Figure 5 An orthographic view of a blacksmith support block.

SECTION II ANSWER ANY TWO QUESTIONS

QUESTION 2

a) Figure 1a shows a shaft support block that has dimensioning mistakes.
   i. Identify the mistakes. [8 marks]
   ii. Write the correct dimensions in Figure 1b provided [10 marks]

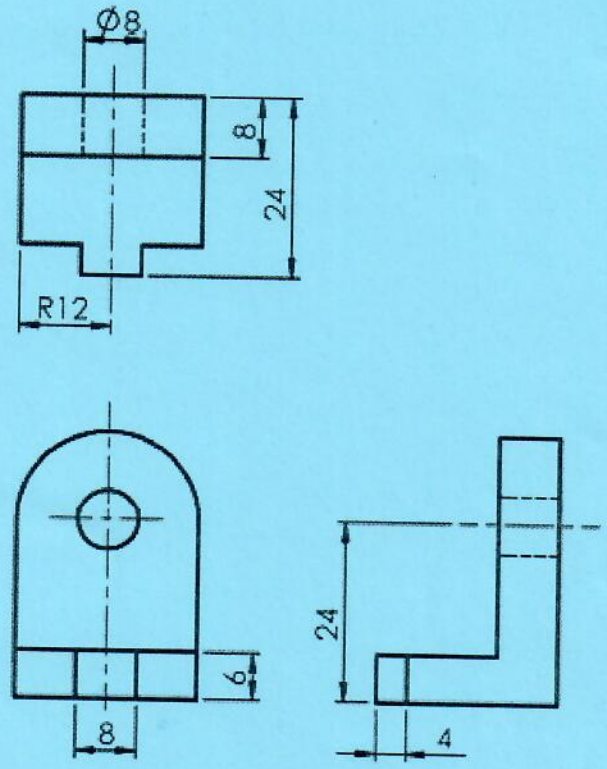


Figure 6 An orthographic projection of a shaft support block

b) With the aid of sketches, distinguish between the following:

   i. Aligned and unidirectional dimensions. [4 marks]
   ii. Size and location dimensions. [4 marks]
   iii. Baseline and continuous dimensions. [4 marks]

QUESTION 3

The drawing in Figure 7 is a base bracket used in the construction of workshop projects. Answer the questions below regarding drawing the front view, end view and plan of the stand on the paper provided on page 11.

a) Determine the scale you will use to draw the views. [10 marks]

b) Draw the front, end and plan of the bracket. [15 marks]

c) Indicate on the drawings two location dimensions and three size dimensions. [5 marks]

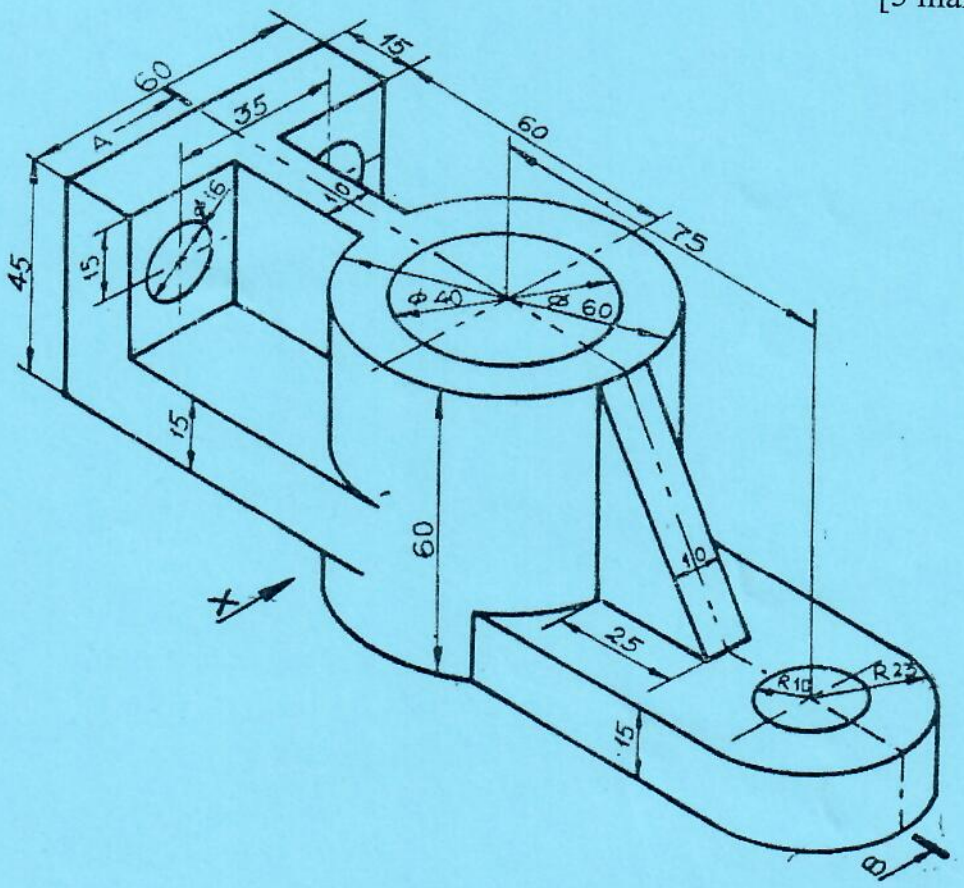


Figure 7 Workshop base bracket

QUESTION 4

a) Distinguish between detail drawings and assembly drawings. [6 marks]

b) Table 1 shows a list of some line types and their typical application in engineering drawing. The first line type has been fully completed as an example. Complete the missing information [14 marks]

	Line type	image	Typical applications
1	Continuous-thin	—	Dimension lines, extension lines, projection lines, hatching lines, etc.
2	(i)	—	Visible outlines, general details, existing buildings.
3	Continuous-thin, ruled with zig zag	(ii)	Break lines, other than on an axis
4	Dashed -thin	(iii)	(iii)
5	(iv)	(v)	Symmetry, path of motion, centre of circle,
6	Chain-thin, thick at the ends	(vi)	(vii)

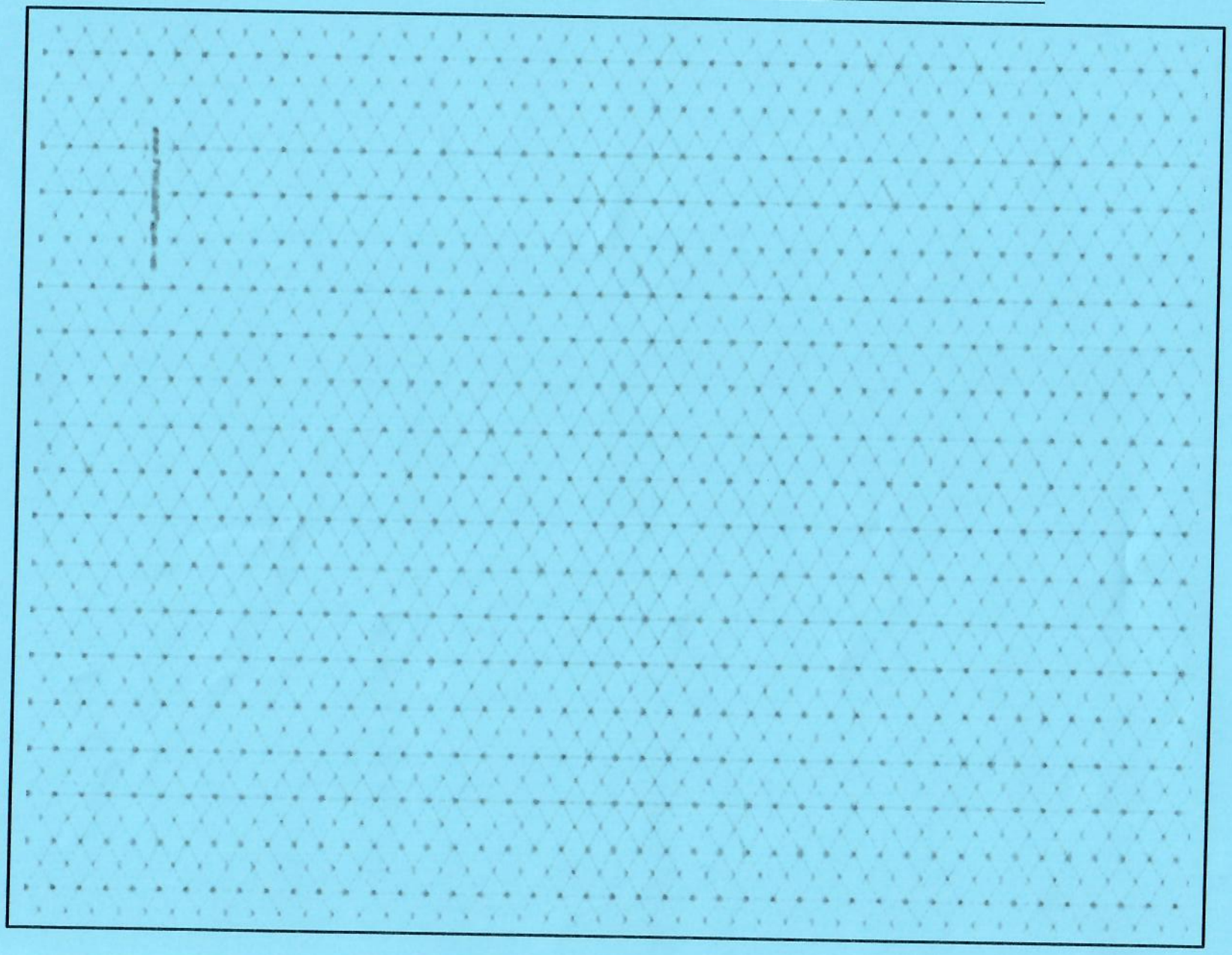
c) Which situation makes it necessary for auxiliary views to be drawn? [2 marks]

d) What are primary auxiliary views? [2 marks]

e) Name the common primary auxiliary views. [6 marks]

QUESTION 1e

CANDIDATE NUMBER _____



QUESTION 2 CANDIDATE NUMBER _____

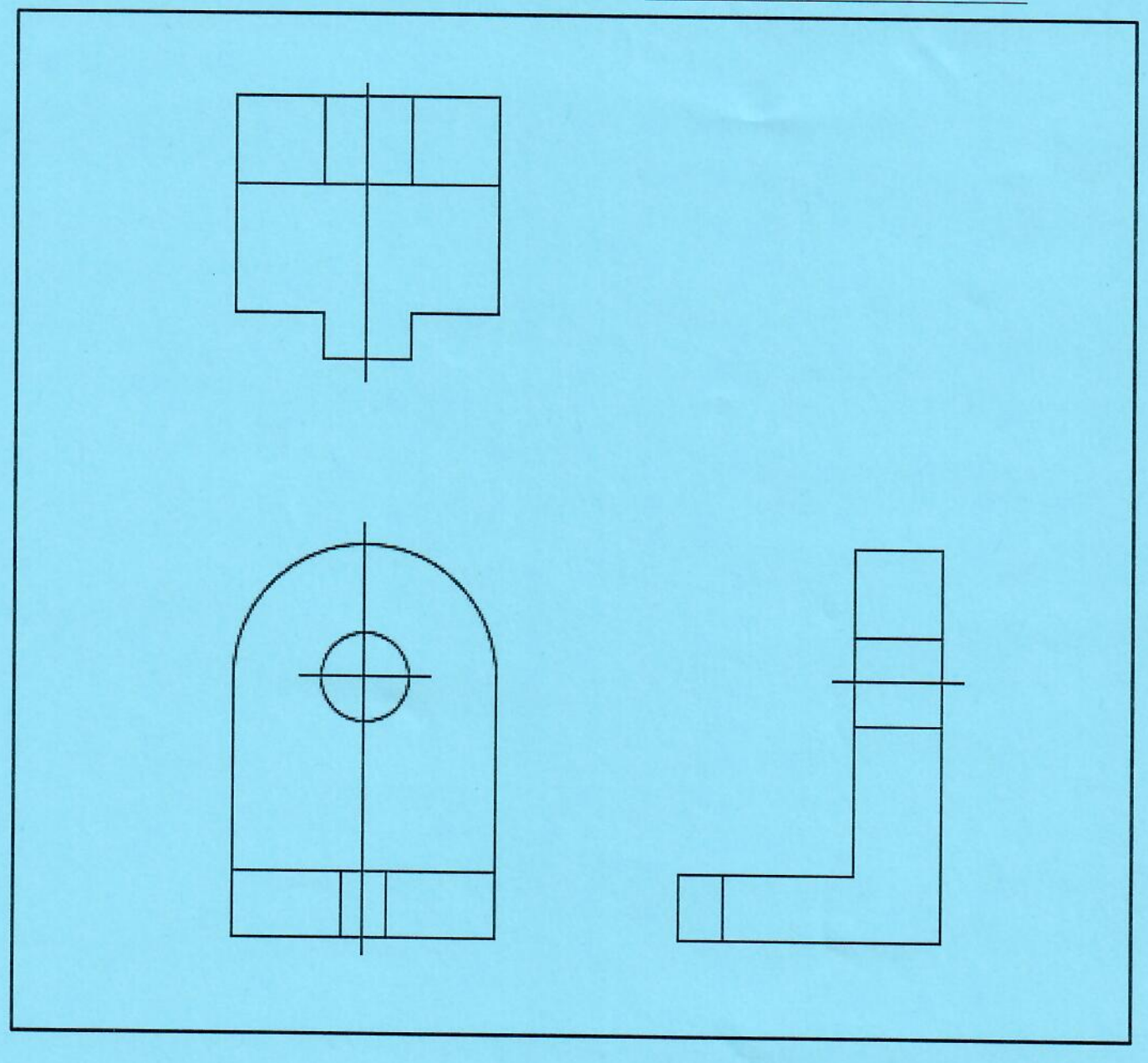


Figure 6 Correctly dimensioned shaft support block

QUESTION 3

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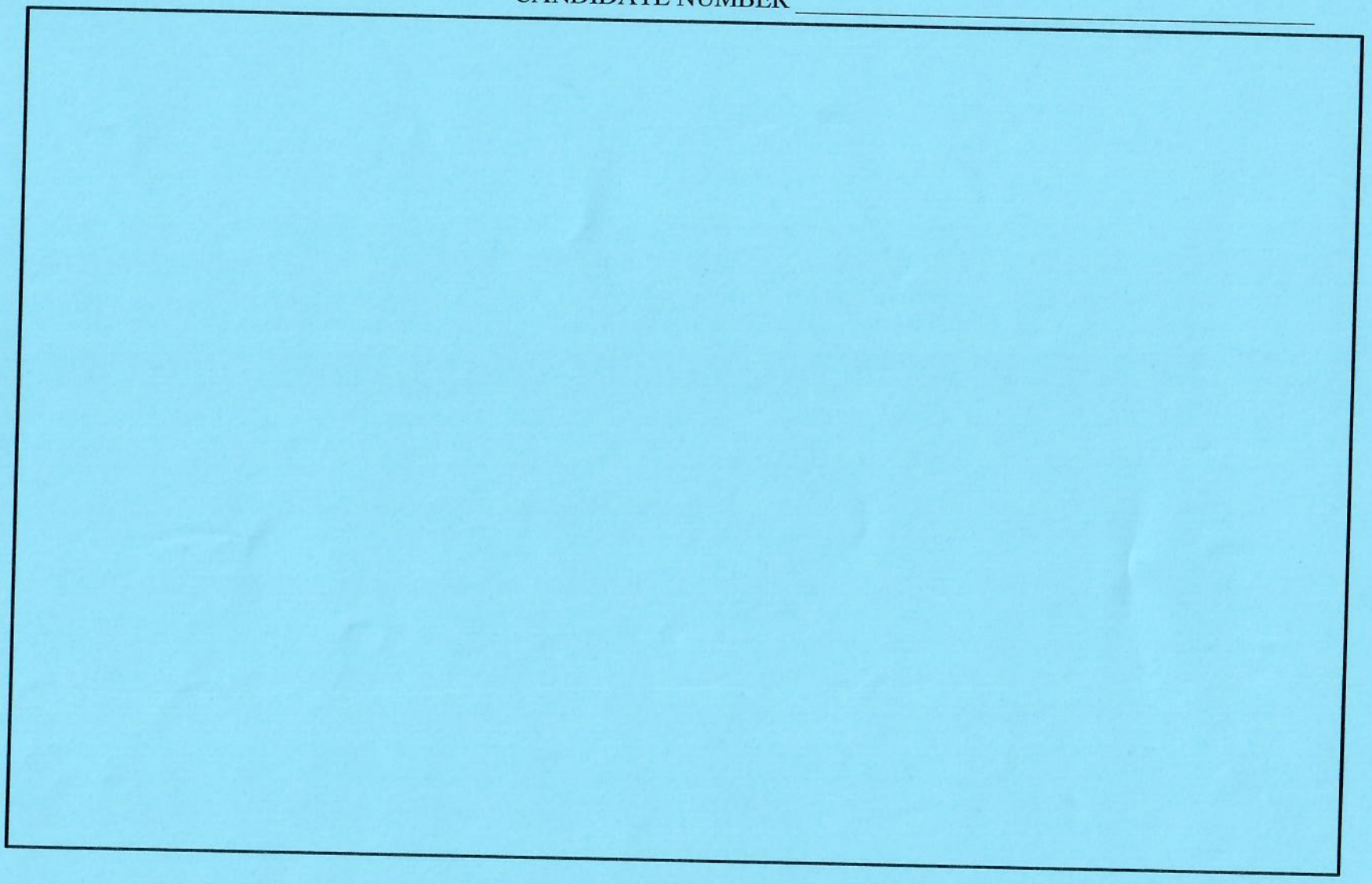
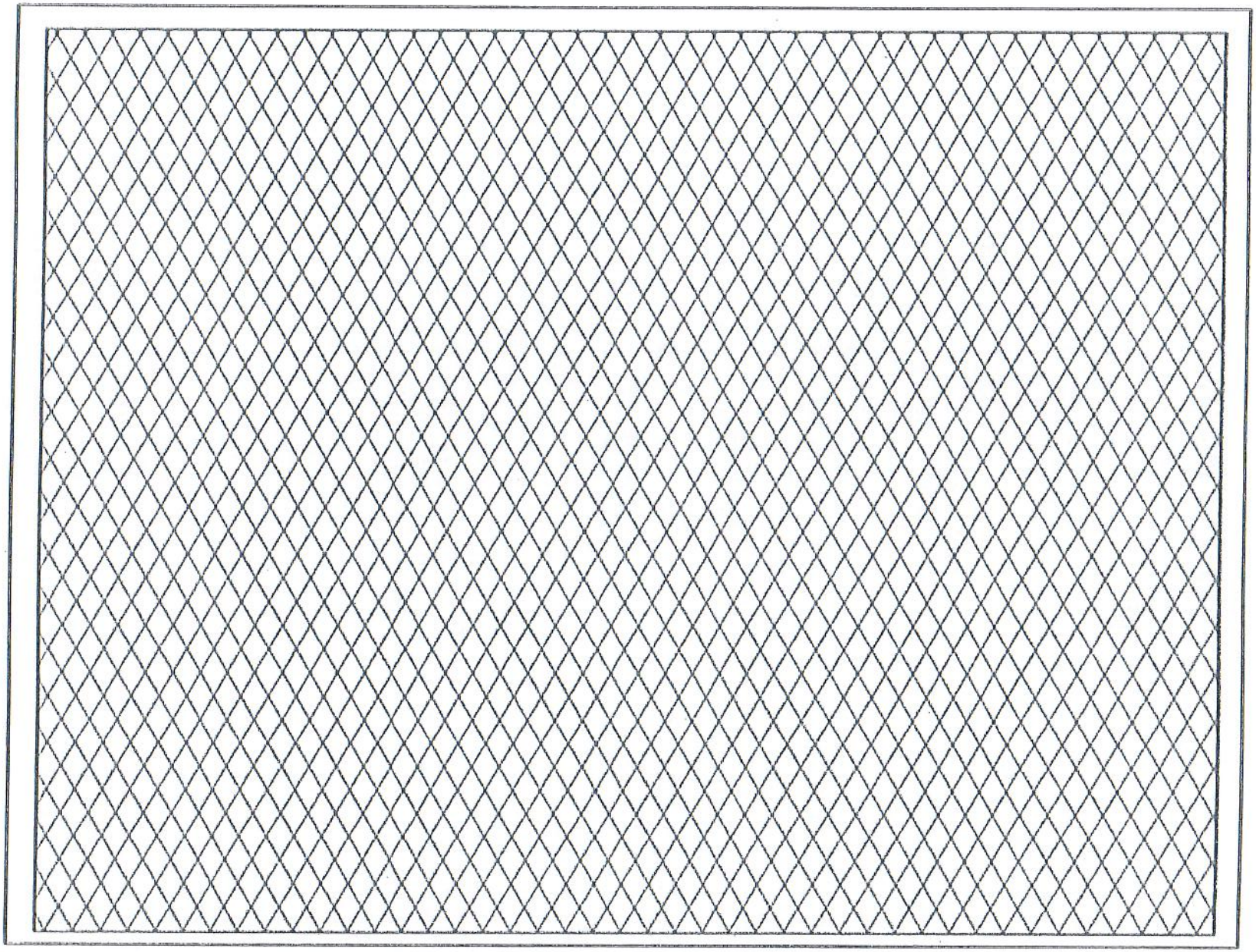


QUESTION 1e CANDIDATE NUMBER _____



QUESTION 2 CANDIDATE NUMBER _____

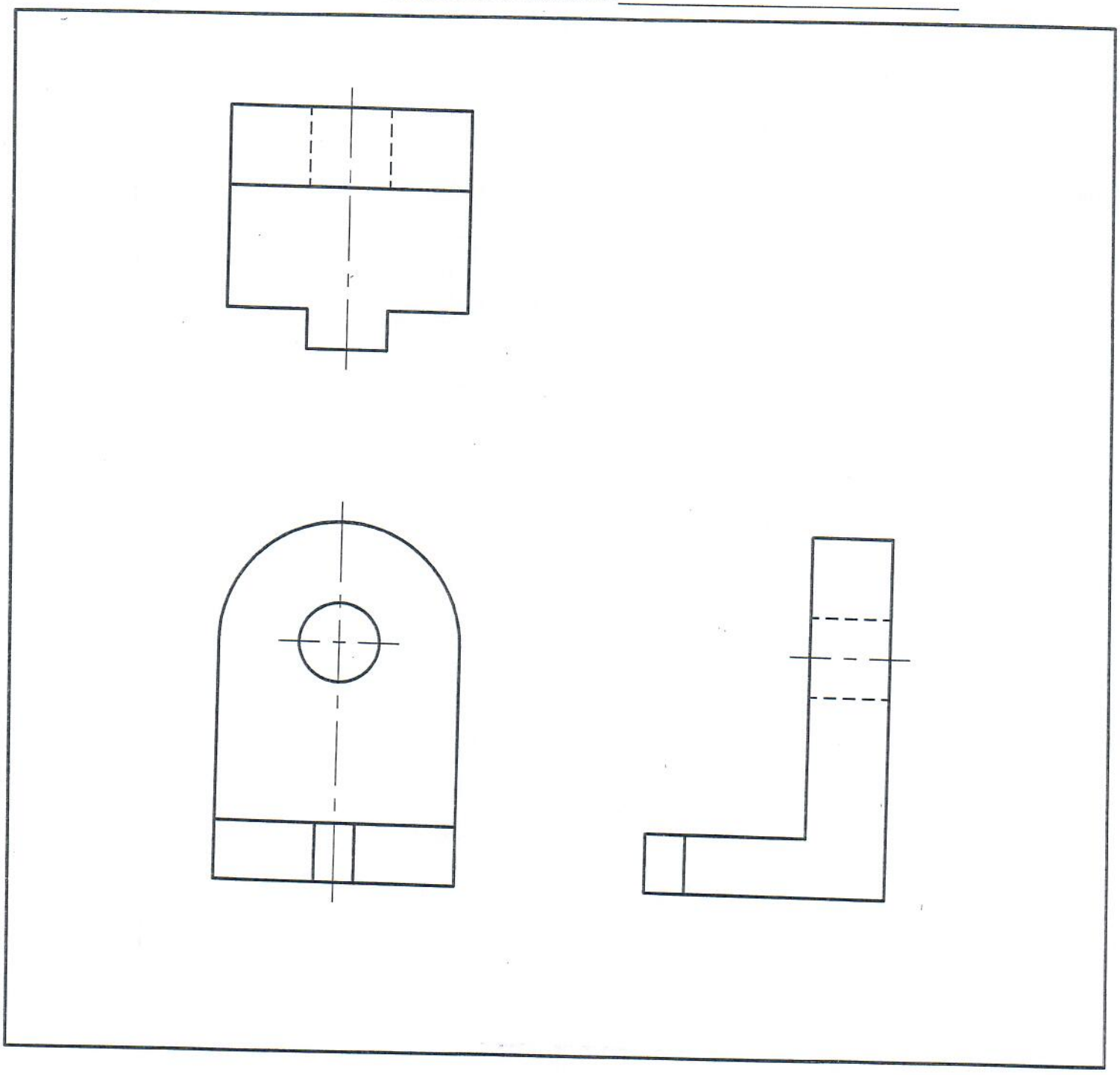


Figure 6 Correctly dimensioned shaft support block

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