



OFFICE OF TASMANIAN  
ASSESSMENT, STANDARDS  
& CERTIFICATION

Tasmanian Certificate of Education  
External Assessment 2016

PLACE YOUR CANDIDATE  
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# TECHNICAL GRAPHICS

## (TEG315115)

### Time allowed for this paper

- Working time: 2 hours
- Plus 15 minutes recommended reading time

|            |    |
|------------|----|
| Pages:     | 16 |
| Questions: | 10 |

### Candidate Instructions

1. You **MUST** make sure that your responses to the questions in this examination paper will show your achievement in the criteria being assessed.
2. There are **THREE** sections to this paper.
3. You must answer **SIX** questions.
  - **ALL FOUR** questions from Section A
  - **ONE** question from Section B
  - **ONE** question from Section C
4. Answer each question on the drawing paper provided.  
  
You are required to use correct linework and presentation, and are encouraged to include freehand sketches, where necessary, to show the development of ideas in the solution of problems. Construction must be shown.
5. The recommended time to be spent on a section is given in the instructions in that section.
6. All dimensions are in millimetres unless otherwise stated.
7. All written responses must be in English.

On the basis of your performance in this examination, the examiners will provide results on each of the following criteria taken from the course statement:

**Criterion 2** Apply geometric knowledge and skills in interpreting and transferring drawings.

**Criterion 3** Solve geometric problems.

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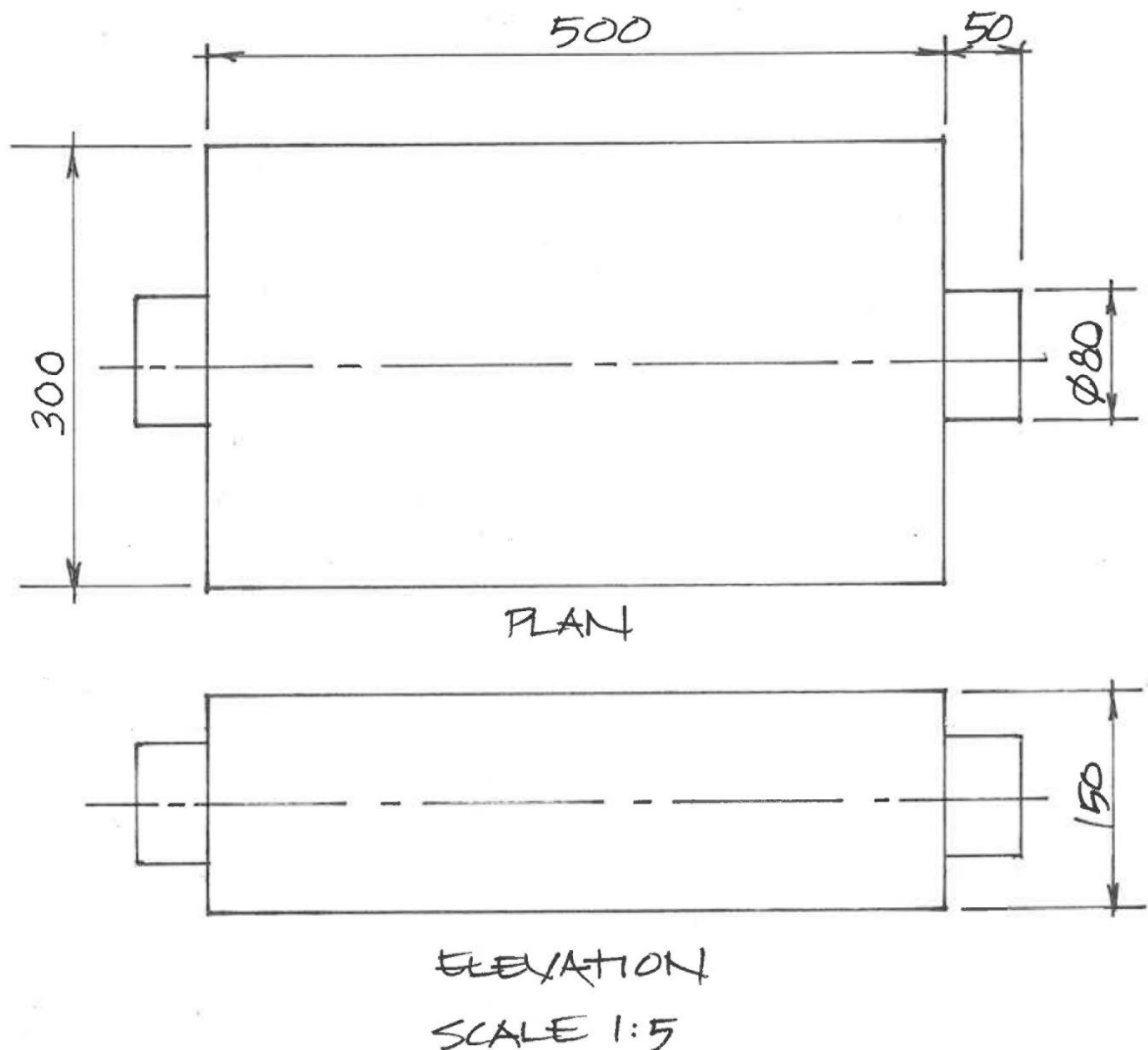
# SECTION A

Answer **ALL** questions in this section on the drawing paper provided.

**Question 1** – This question assesses **Criterion 2**.

Figure 1 shows the plan and elevation of a muffler that has an elliptical cross section.

Redraw the given views and complete an end elevation. Is your drawing first or third angle projection?



**Figure 1**

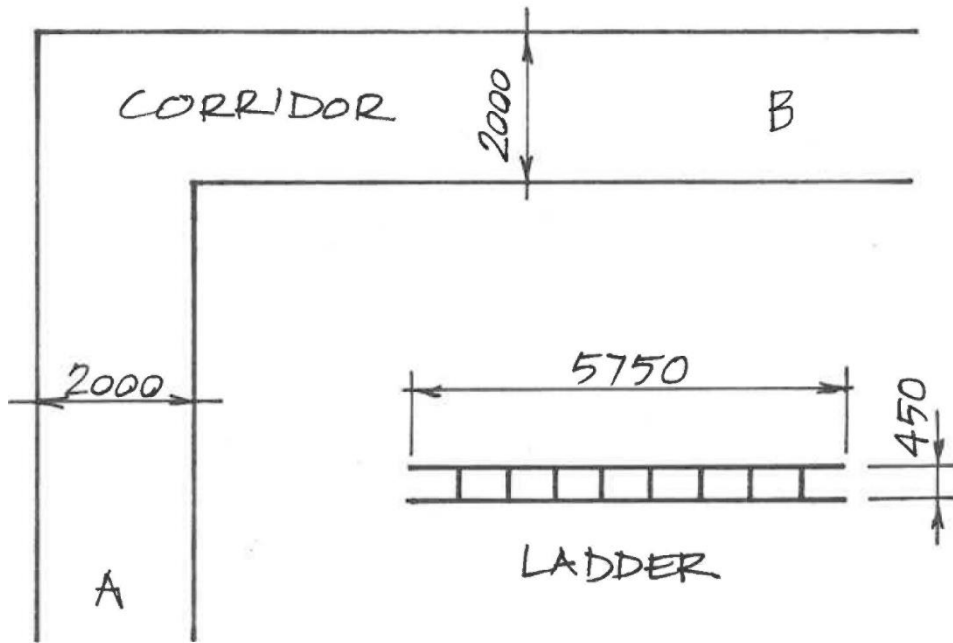
**Section A continues.**

**Section A (continued)**

**Question 2** – This question assesses **Criterion 3**.

Figure 2 shows the plan view of a corridor having a floor to ceiling height of 2400 mm. Also shown is a ladder.

Graphically determine whether the ladder can be moved along the corridor from A to B. Answer 'yes' or 'no' beneath your drawing.



SCALE 1:100

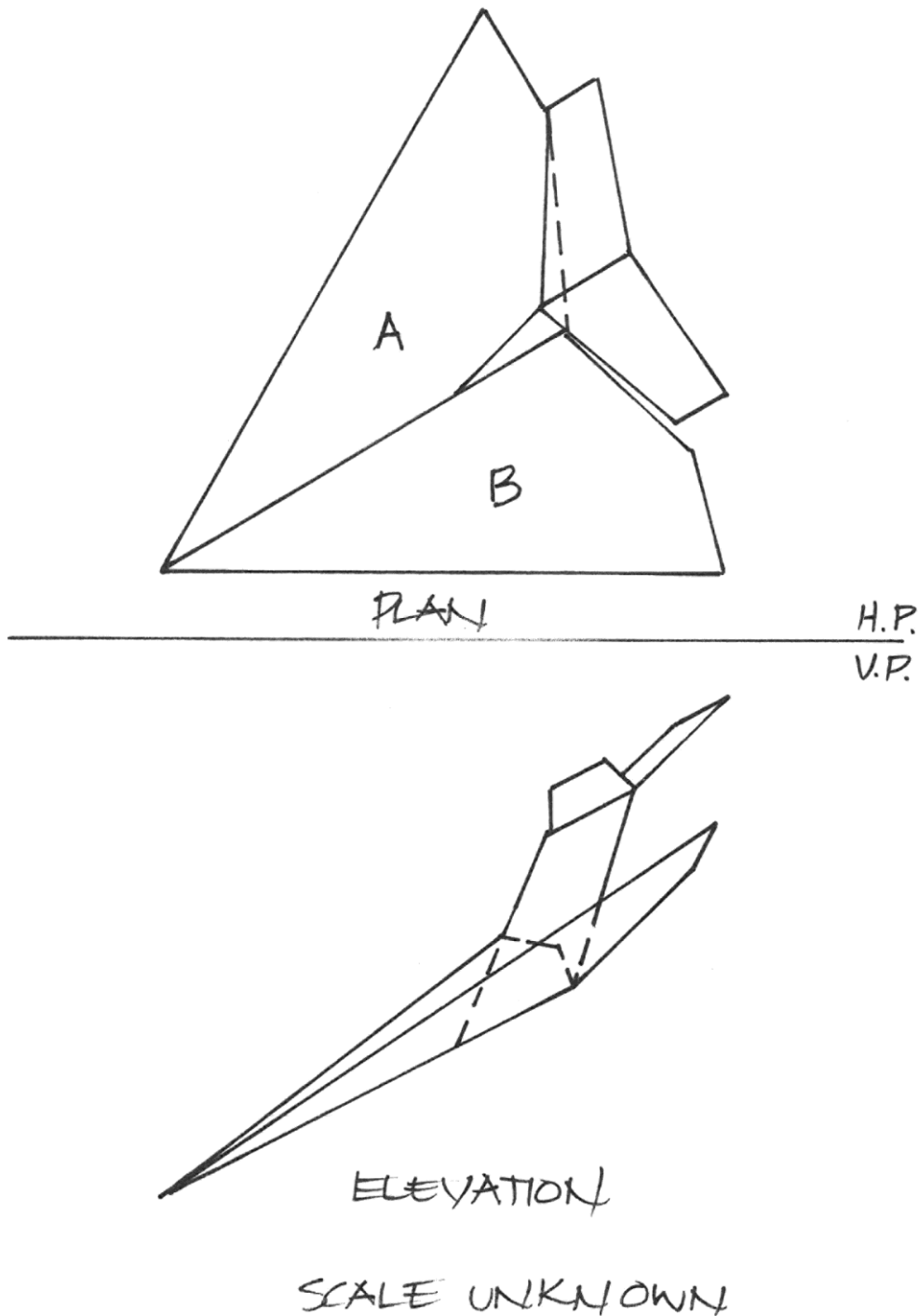
**Figure 2**

**Section A (continued)**

**Question 3** – This question assesses **Criteria 2 and 3**.

Two infrared images of an unidentified aircraft were taken simultaneously by two surveillance aircraft. One image horizontally and the other vertically.

- (a) Transfer the two views of the aircraft onto your drawing paper by pin pricking through the question paper.
- (b) Determine the true angle between the upswept wings A and B.



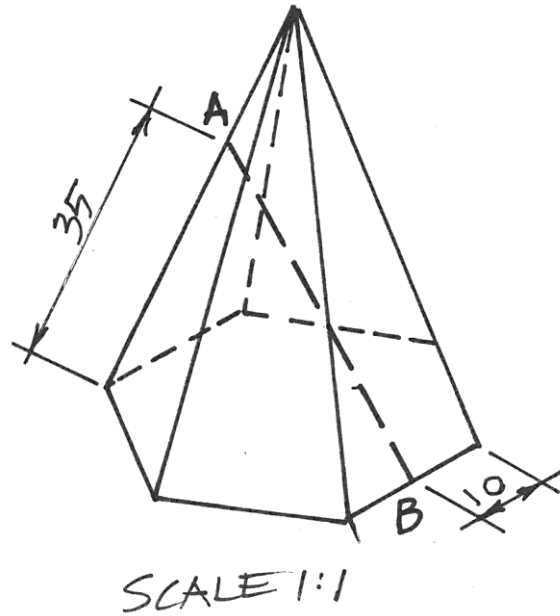
**Figure 3**

**Section A (continued)**

**Question 4** – This question assesses **Criteria 2 and 3**.

An isometric view of a regular hexagonal pyramid, base edge 20 mm and vertical height 55 mm is shown below.

Graphically determine the true length of the line AB.



**Figure 4**

## SECTION B

Answer **ONE** question from this section on the drawing paper provided.

This section assesses **Criteria 2 and 3** weighted 1 : 4 respectively.

### Question 5

The line drawing of part of a feed mechanism is shown in Figure 5.

The mechanism comprises, a wheel with centre O, which rolls without slipping around quadrant AC (centre B). A crank FD, which rotates about a fixed point F and a rod ADP which is pin jointed at A and D.

Redraw the given line drawing and plot the locus of point P as the wheel rolls from A to C.

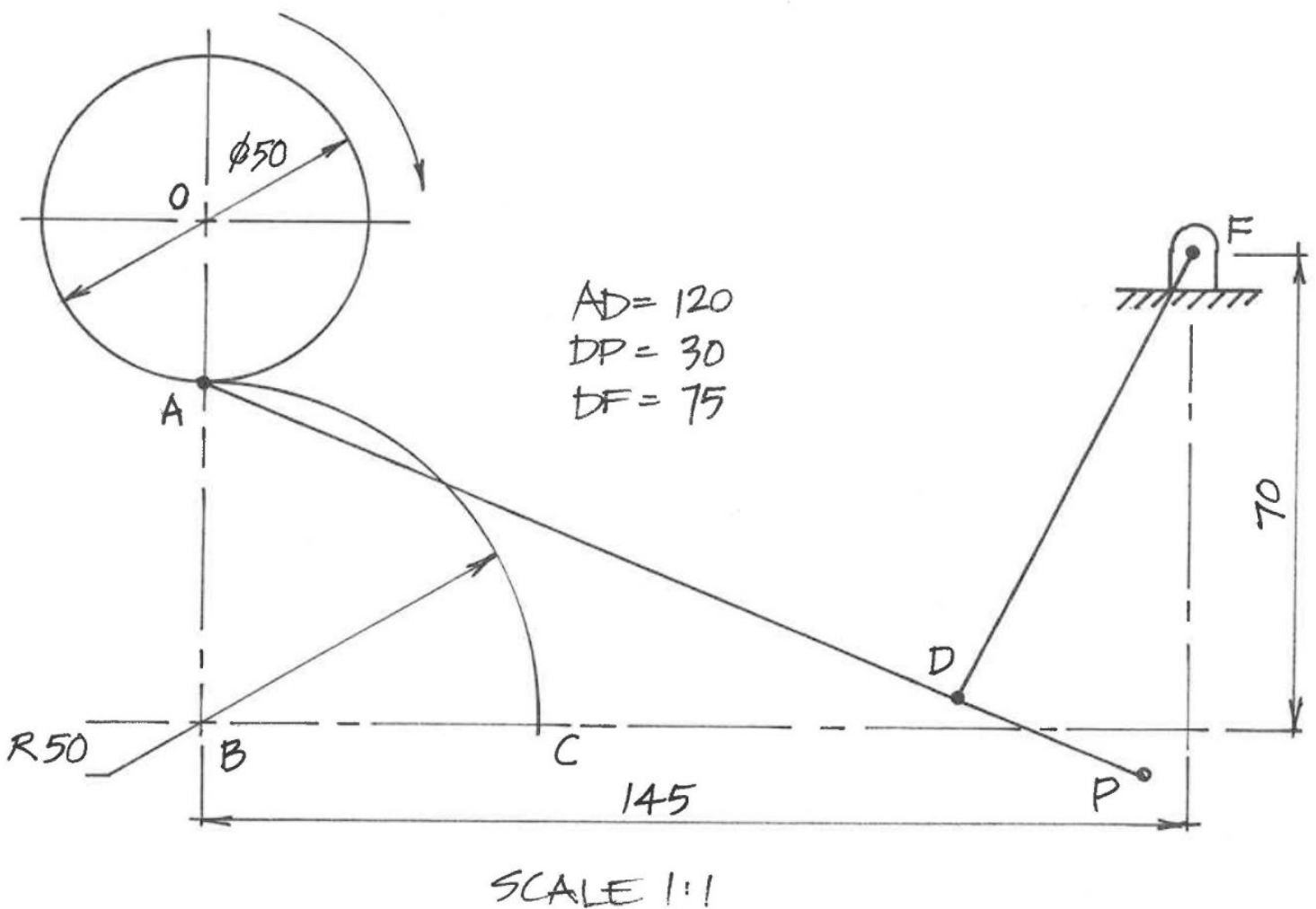


Figure 5

Section B continues.

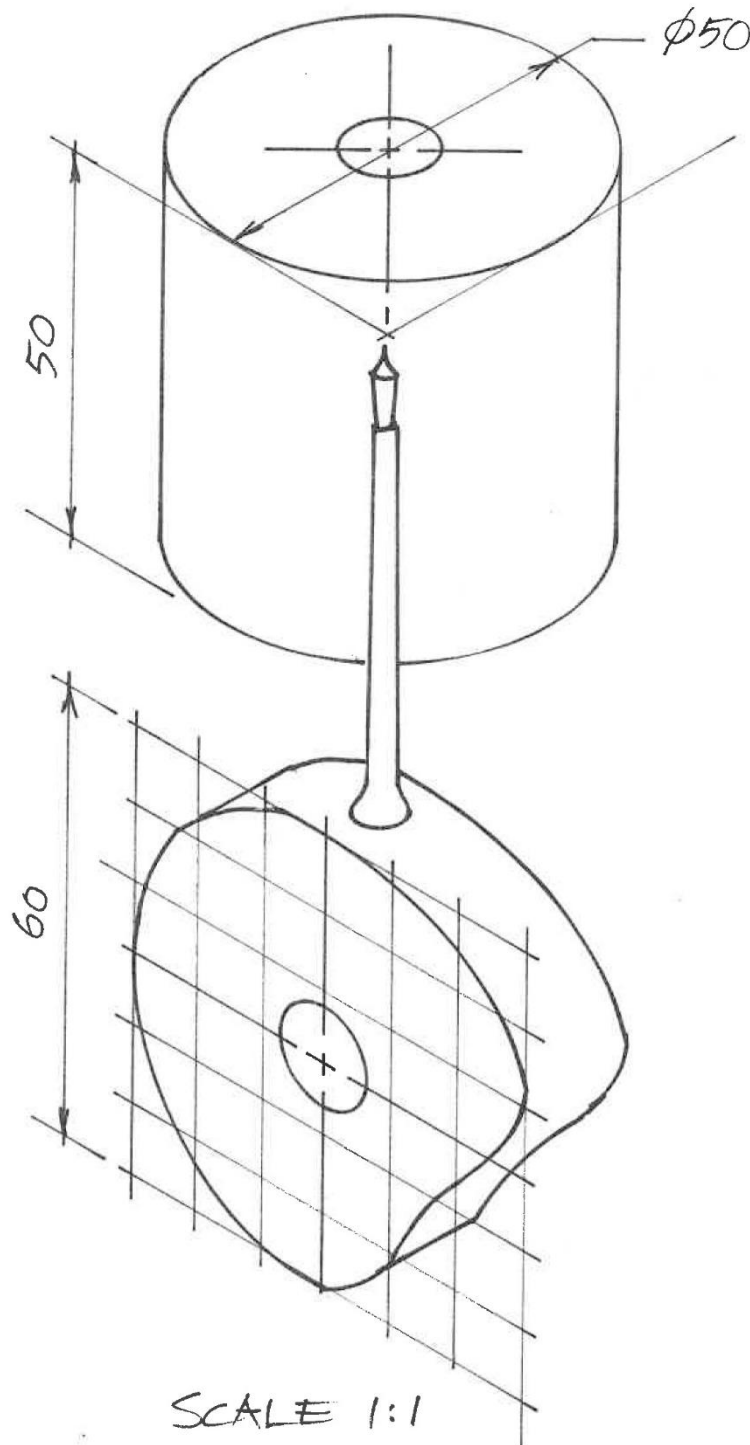
**Section B (continued)**

**Question 6**

A cam connected through a follower marker pen is used to trace the follower displacement diagram on a paper chart attached to a drum as depicted in the isometric view in Figure 6. The drum rotates in a clockwise direction for each rotation of the cam.

The cam, which also rotates in a clockwise direction, is shown outlined by an isometric square, the centre of which is the camshaft centre.

Plot the flattened follower displacement diagram for one revolution of the cam.



**Figure 6**



Section B (continued)

Question 7

A mixing device is constructed of a sheet metal vane inclined at a constant angle of  $45^\circ$  to a central cylindrical column. The vane is welded to the column and is clockwise wound when viewed from above.

Draw a completed elevation of the vane for one pitch showing hidden detail.

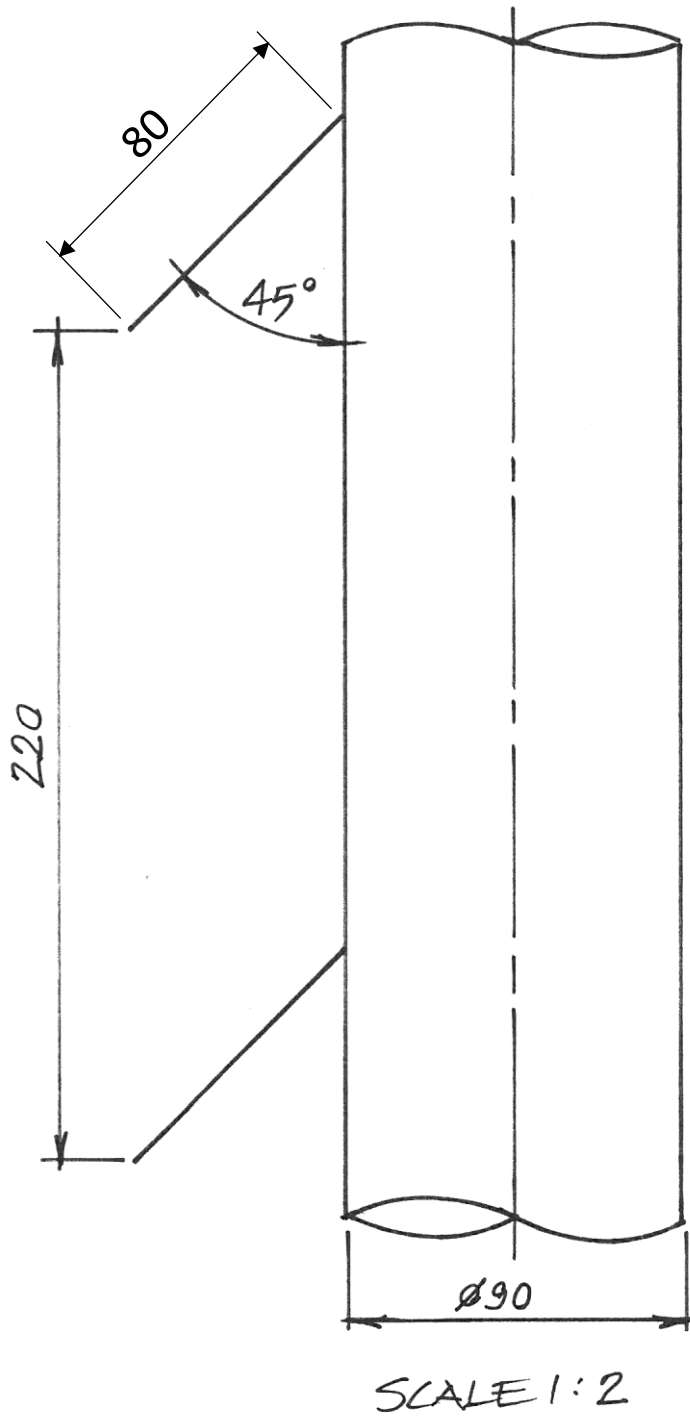


Figure 7

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# SECTION C

Answer **ONE** question from this section.

This section assesses **Criteria 2 and 3** weighted 4 : 1 respectively.

## Question 8

A piece of steel has been turned and cut. The resulting section is called a Palmate section.

- (a) Redraw the plan and elevation.
- (b) Draw an end elevation.
- (c) Draw the lines of intersection.

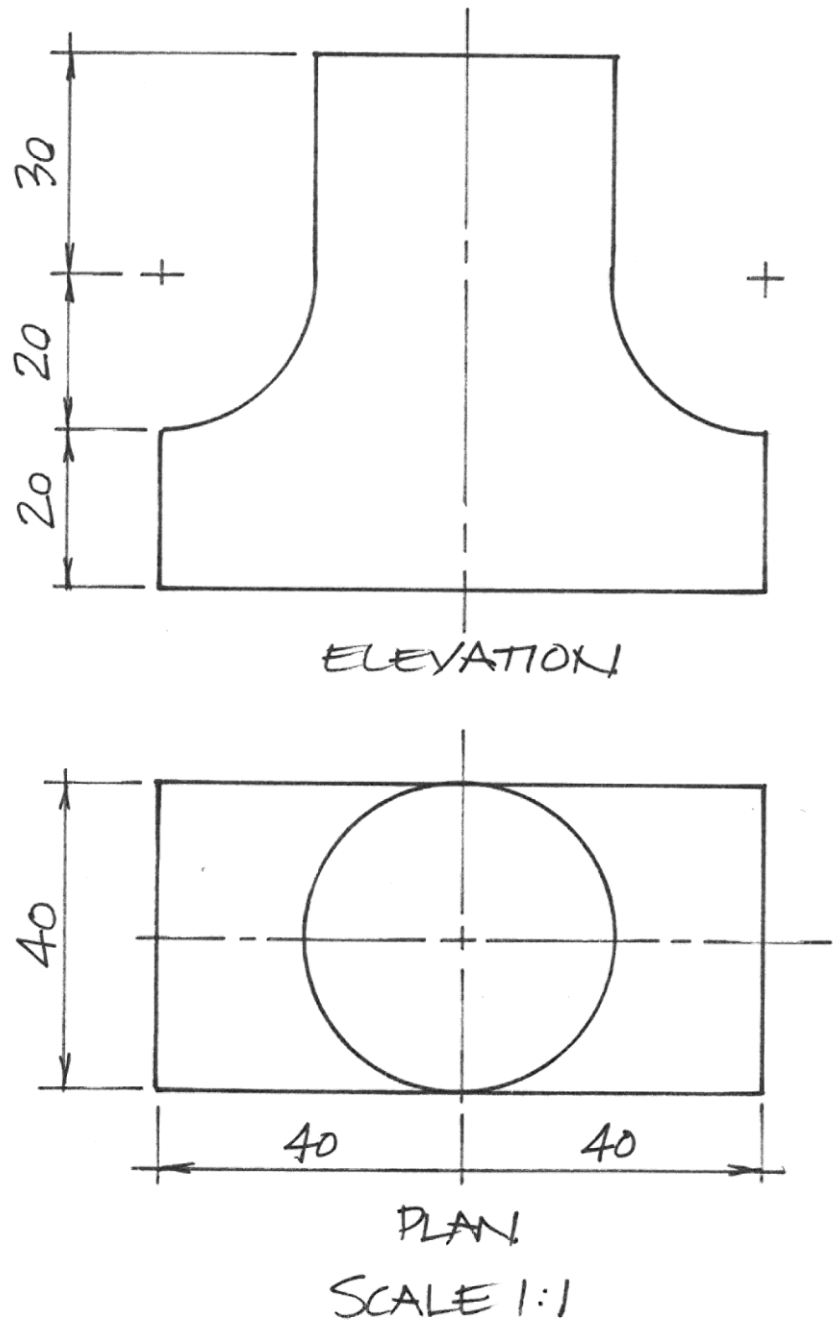


Figure 8

Section C continues.

Section C (continued)

Question 9

Figure 9 shows the plan and elevation of a sphere A and a cylinder B which are in contact with each other. The elevation of a cylinder C, which is in contact with both solids, is also shown.

- (a) Draw the plan and elevation of the sphere A and cylinder B.
- (b) Draw the plan of the cylinder C.
- (c) Construct a third view and show the points of contact between all solids in all views.

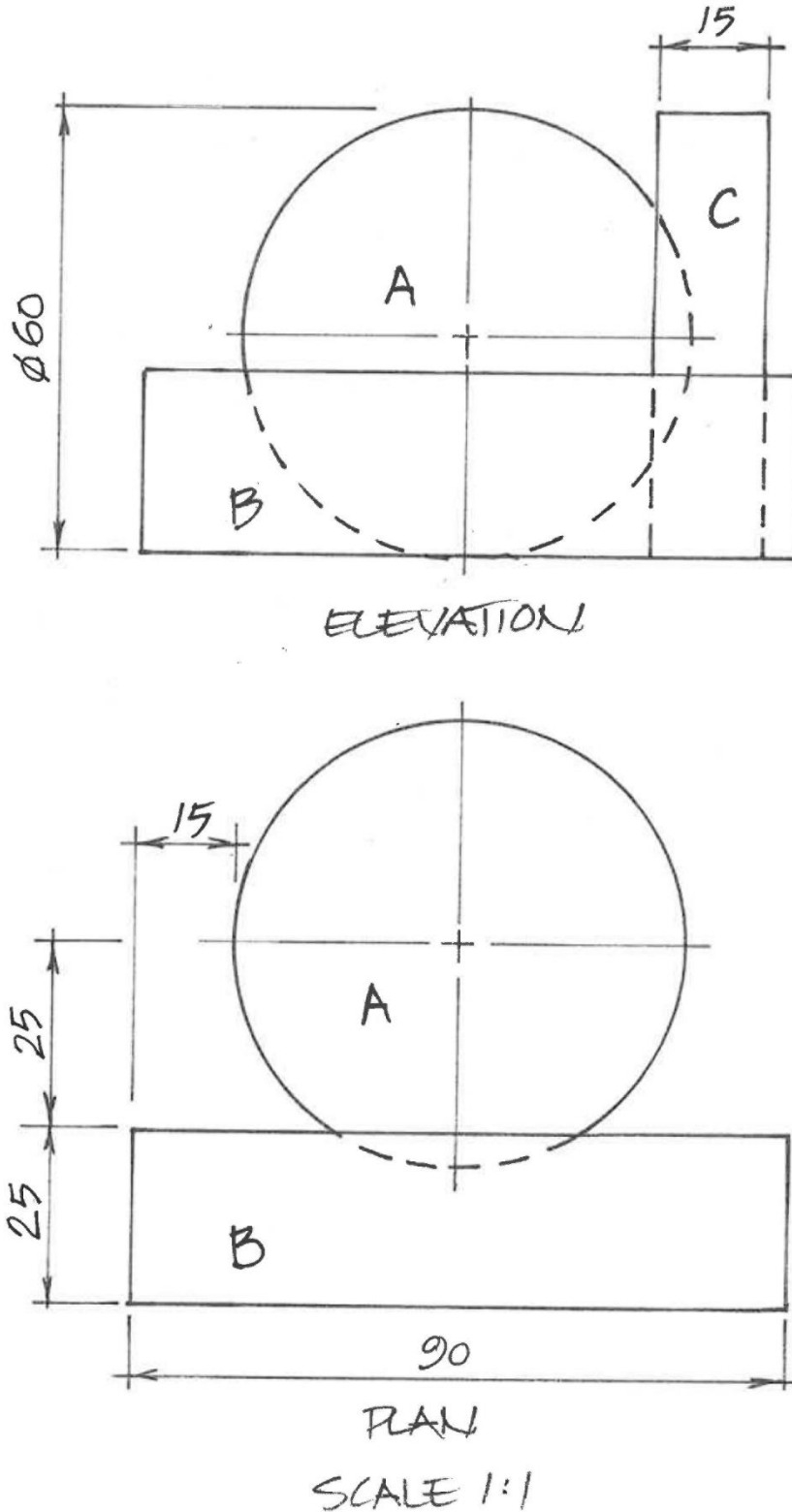


Figure 9

Section C continues.

Section C (continued)

Question 10

Figure 10 below shows the elevation and plan of a blender with the lid removed.

- (a) Redraw the plan and elevation.
- (b) Draw the development of surface A.
- (c) Draw the true shape of surface B.

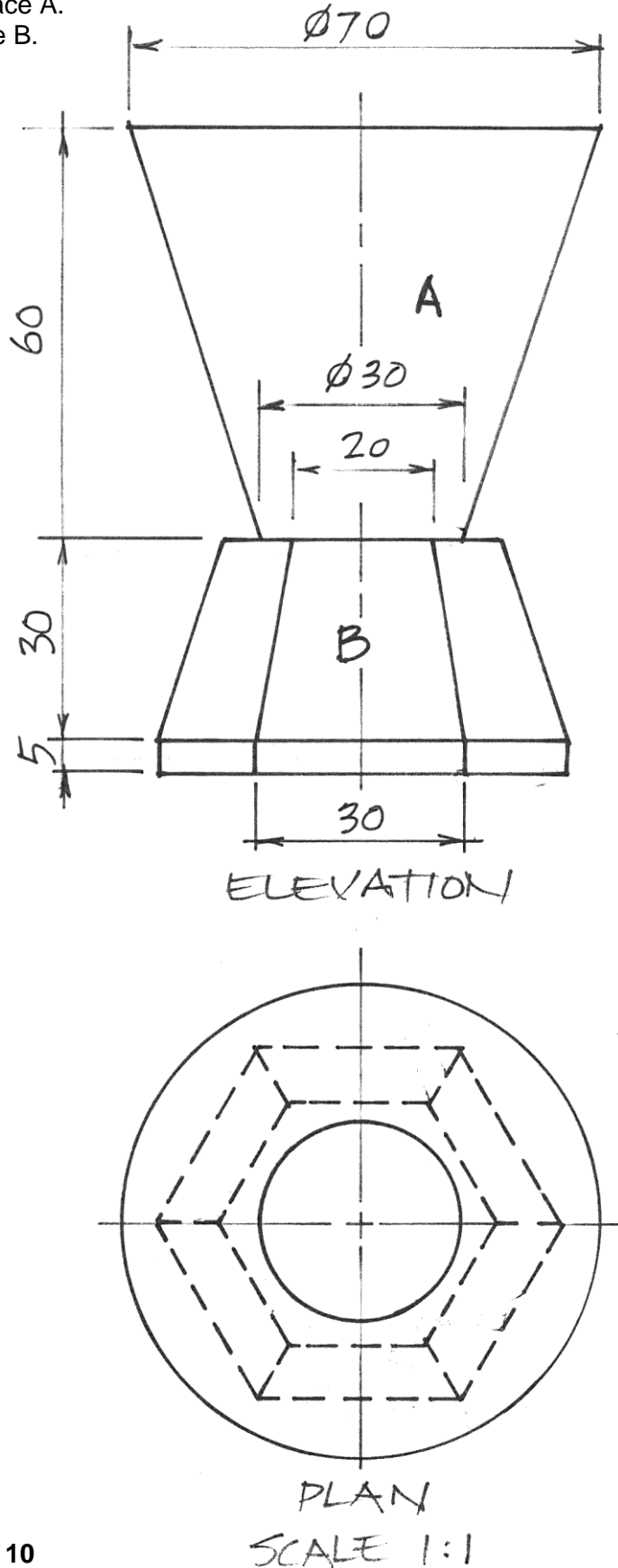


Figure 10

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