



STUDENT NUMBER

CENTRE NUMBER

HIGHER SCHOOL CERTIFICATE EXAMINATION

1995

INDUSTRIAL TECHNOLOGY

2 UNIT

PART B—DRAWING

*Time allowed for Part A and Part B—Two hours and a half
(Plus 5 minutes' reading time)*

DIRECTIONS TO CANDIDATES

- Write your Student Number and Centre Number at the top right-hand corner of this page.
- Where appropriate, show working for solutions neatly and clearly.
- You may use approved drawing instruments and calculators.

Part B—Drawing

- Question 5 is COMPULSORY (5 marks).
- Attempt THREE questions from Questions 6, 7, 8, and 9 (5 marks each).

EXAMINER'S USE ONLY

Question			
5			
6			
7			
8			
9			

PART B—DRAWING

EXAMINER'S
USE ONLY



Each question in this Drawing paper will focus on how drawing is an integral component of many different industries. Drawing is the basis of most industrial activities.

QUESTION 5. This question is **COMPULSORY**. (5 marks)

(a) In the space provided below, list **TWO** features of:

(i) detail drawings;

- 1.
- 2.

(ii) assembly drawings.

- 1.
- 2.

(b) In sentence form, explain the following engineering-drawing terminology.

(i) AS1100

.....
.....

(ii) PCD

.....
.....

(iii) Keyway

.....
.....

(iv) Spot face

.....
.....


(v) Section

.....
.....

QUESTION 5. (Continued)

EXAMINER'S
USE ONLY

- (c) An exploded pictorial drawing of a trolley wheel is shown in Figure 1. To assist in the assembly of the wheel, it is necessary to draw an assembly drawing, showing the component parts in position.
- (i) Using the starting positions given, complete the sectional front view through the centre of the wheel, and a top view of the assembled trolley wheel.
 - (ii) Clearly indicate on your assembly drawing a suitable method of fixing the shaft (item 3) to the body (item 1).
 - (iii) Clearly indicate on your assembly drawing a suitable method of retaining the axle (item 4) in position.
 - (iv) On your assembly drawing, show the following three operational dimensions, using appropriate dimensioning standards.
 1. The outside diameter of the wheel.
 2. The overall height of the assembled trolley wheel.
 3. The overall width of the assembled trolley wheel.
 - (v) Name the two views.
 - (vi) Complete the materials list provided.

4			1
	SHAFT		
1		M.S.	
ITEM	DESCRIPTION		REQ'D.
TROLLEY WHEEL		B. TIDY	
		1 - 4 - 95	AD ₁ 
		SCALE	

QUESTION 5. (Continued)

EXAMINER'S
USE ONLY

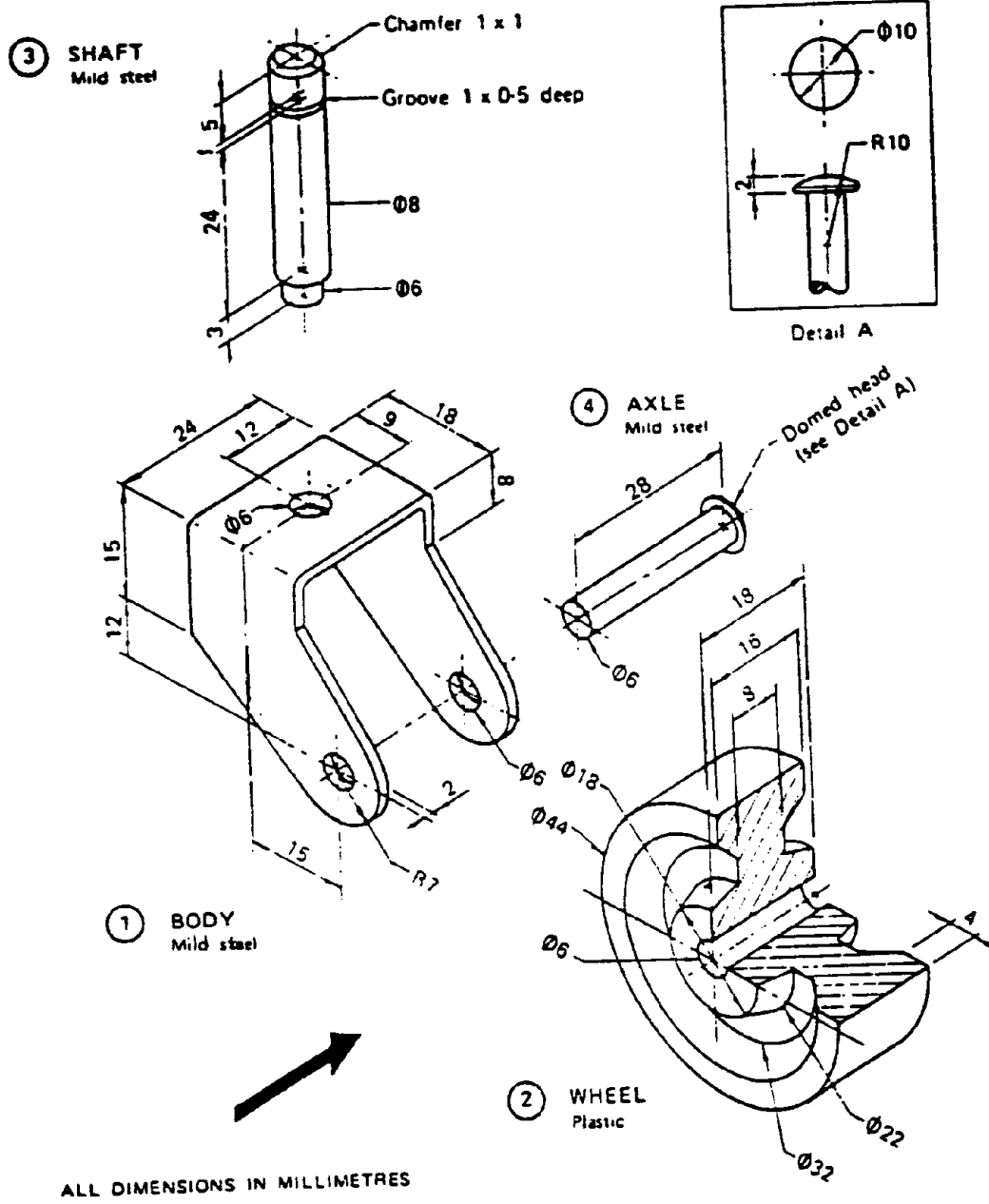
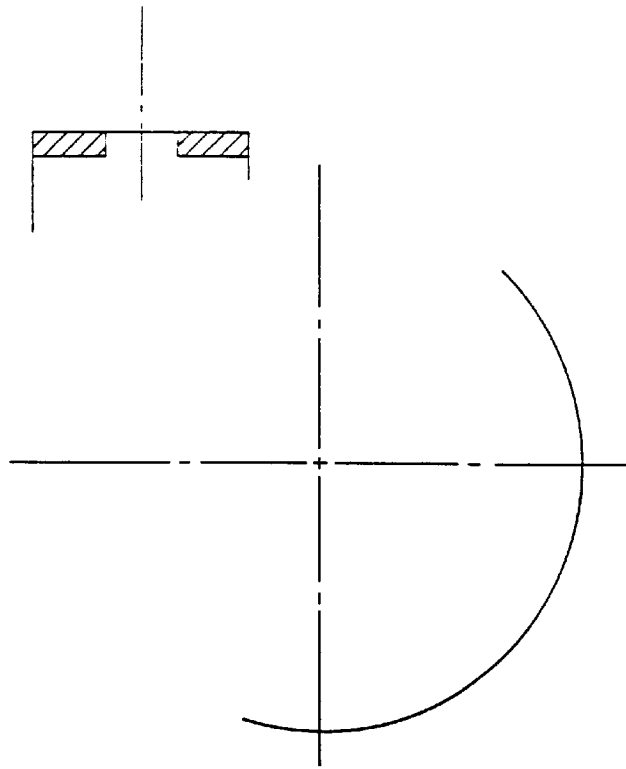
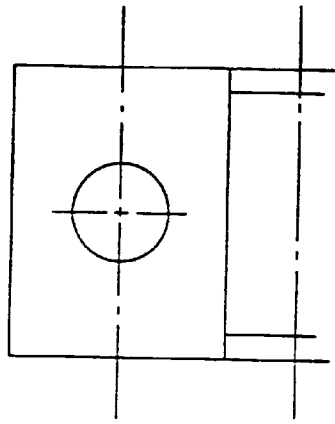


FIG. 1. EXPLODED PICTORIAL DRAWING OF TROLLEY WHEEL

QUESTION 5. (Continued)

EXAMINER'S
USE ONLY



Scale 2 : 1

Attempt THREE questions only from Questions 6, 7, 8, and 9.

EXAMINER'S
USE ONLY



QUESTION 6. (5 marks)

- (a) An architect has been approached to design a separate two-storey town-house dwelling for construction on a client's land. Along with the existing dwelling, this will provide for dual occupancy of the land. The survey plan of the land is shown in Figure 2.

The client's brief is as follows:

- brick veneer;
- gable concrete tile roof;
- main living-room, two bedrooms, bathroom, laundry, kitchen, carport;
- light and power outlets in each room;
- doors and windows in each room.

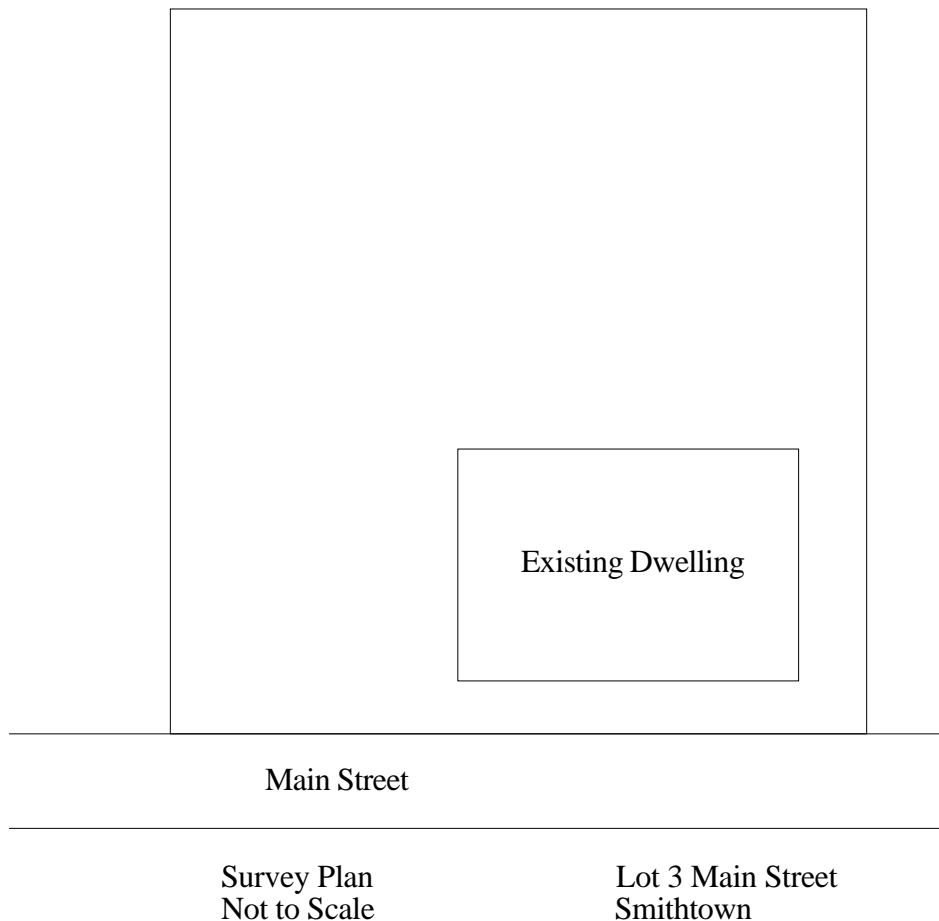


FIG. 2

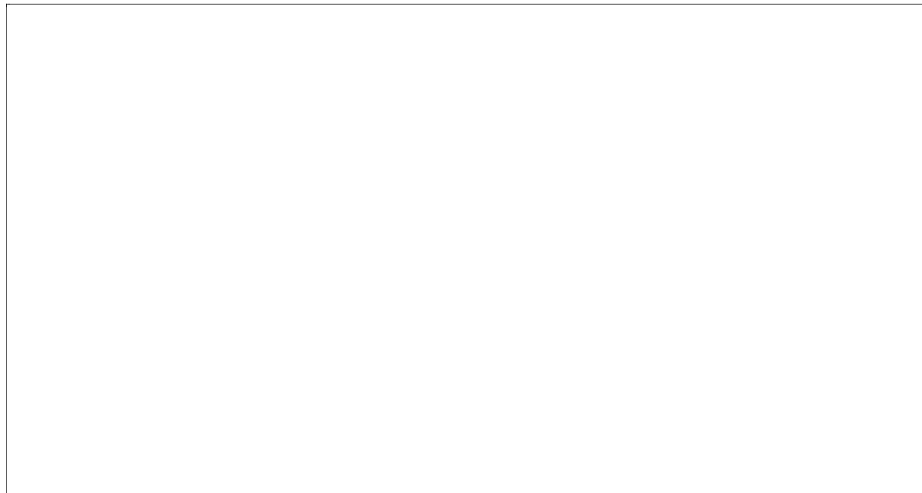
QUESTION 6. (Continued)

EXAMINER'S
USE ONLY

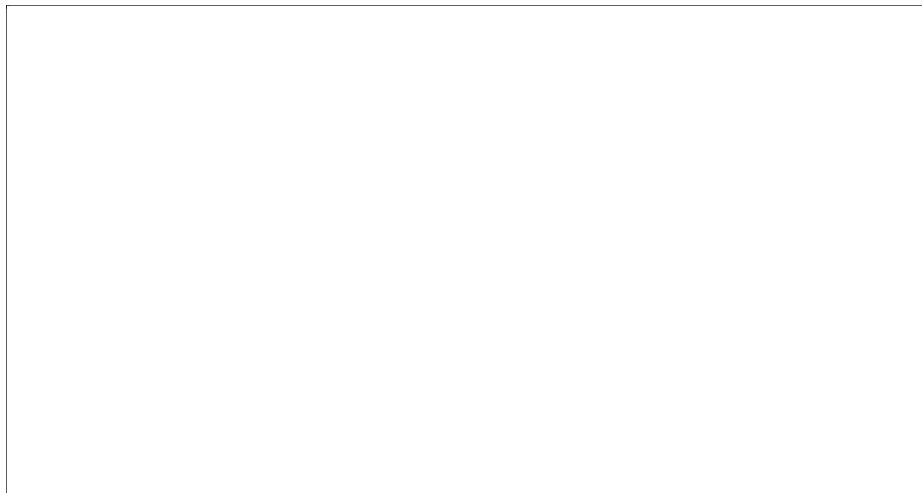
- (i) In the space provided, neatly sketch TWO alternative plan views of the proposed internal layout of the dual-occupancy dwelling.

Your sketches should:

1. show the client's requests;
2. be sketched in proportion (i.e. room sizes etc.);
3. be labelled using appropriate architectural symbols and techniques;
4. show the roof line in hidden detail.



DESIGN 1



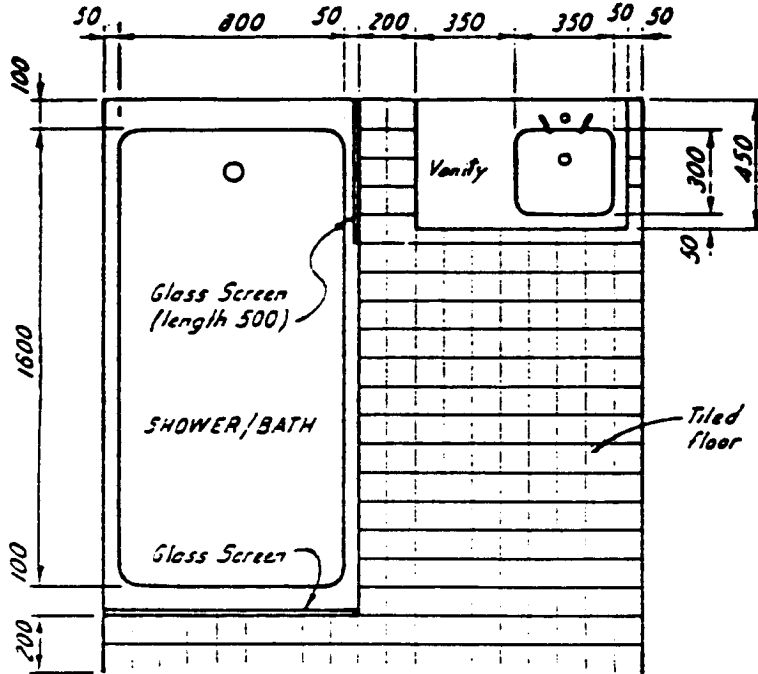
DESIGN 2

- (ii) Neatly sketch the outline of the dual-occupancy dwelling in the correct position on the survey plan, Figure 2.

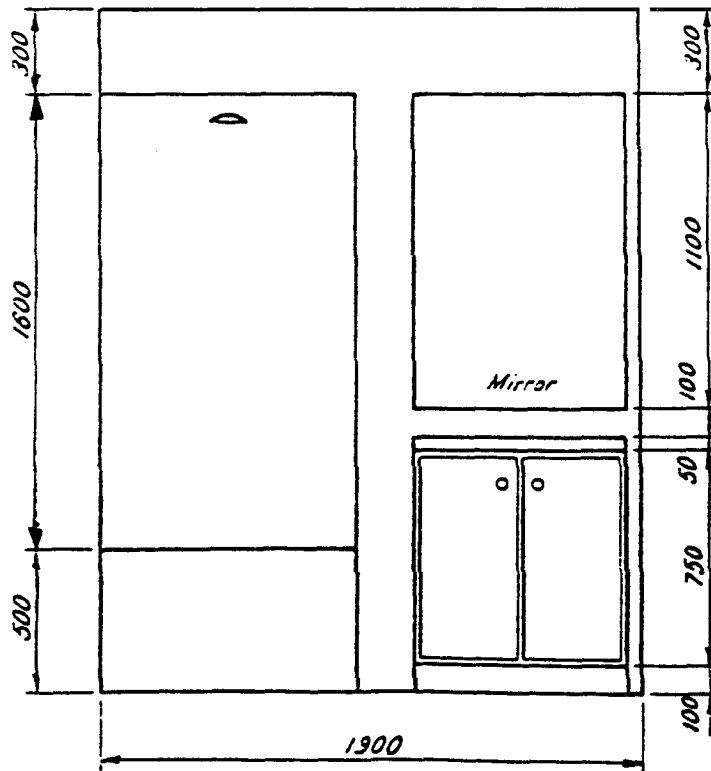
QUESTION 6. (Continued)

EXAMINER'S
USE ONLY

- (b) A plan and elevation of a bathroom is shown below in Figure 3. Using the starting positions and grid provided on Figure 4, complete the internal perspective (single point) of the bathroom and fittings. Render the drawing as if you were presenting it to a prospective client.



Plan

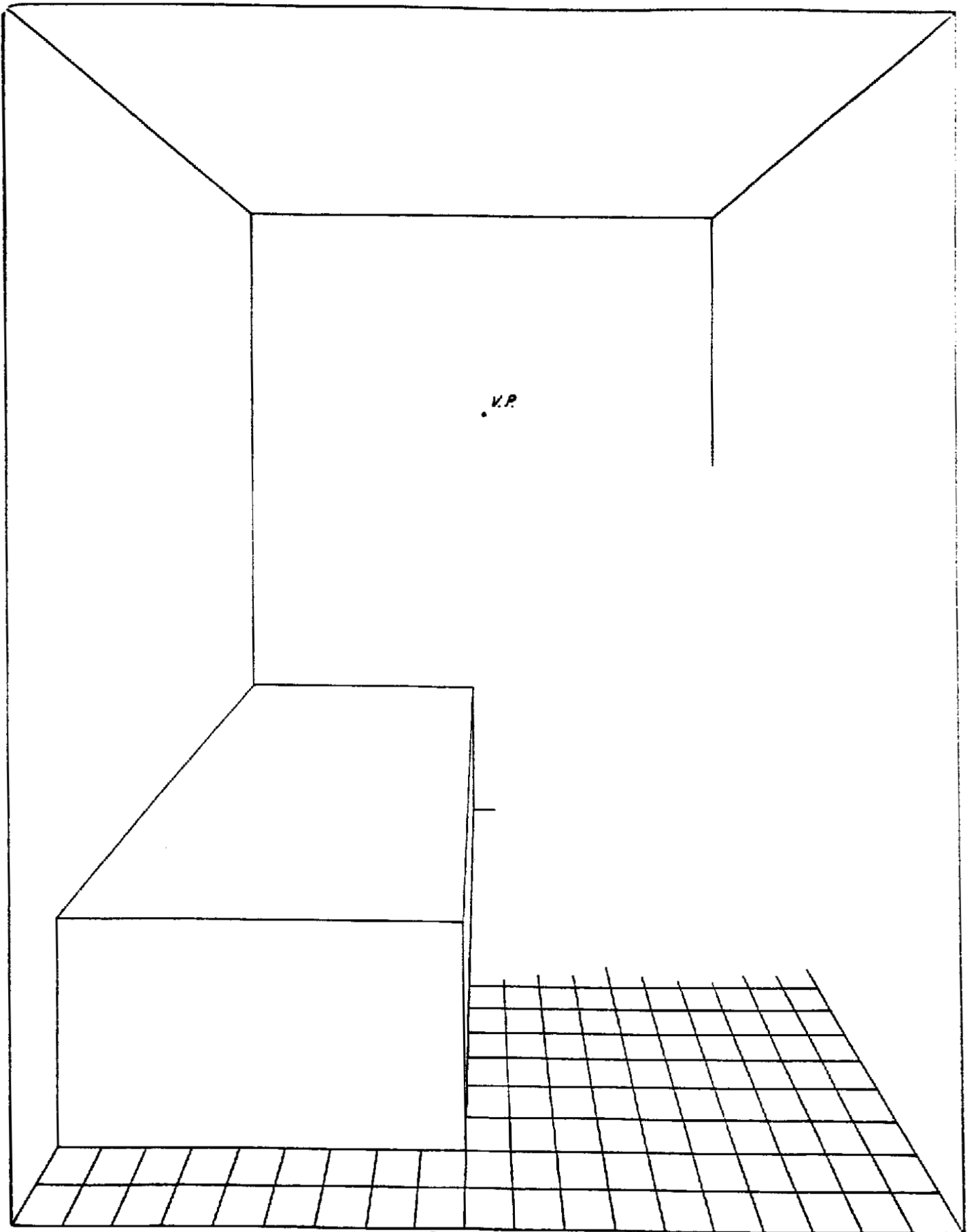


Elevation

NOT TO SCALE

FIG. 3

QUESTION 6. (Continued)

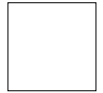


Scale 1 : 10

FIG. 4

Attempt THREE questions only from Questions 6, 7, 8, and 9.

EXAMINER'S
USE ONLY

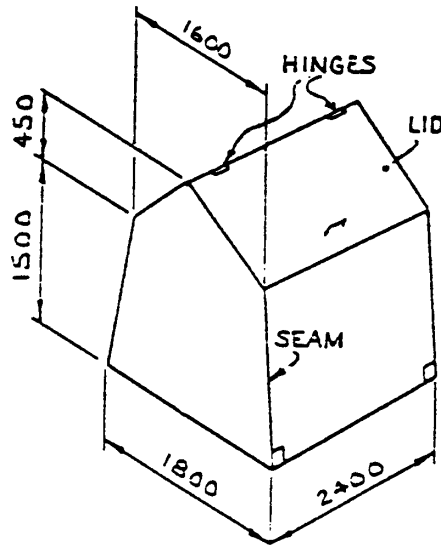


QUESTION 7. (5 marks)

A sheetmetal worker can be required to make a large range of articles.

(a) A drawing of a sheetmetal container is shown. In the space provided, set out the development of the surfaces for a scale model of the container using a scale of 1 : 50.

- Include the base.
- Include tabs for joining at seams.

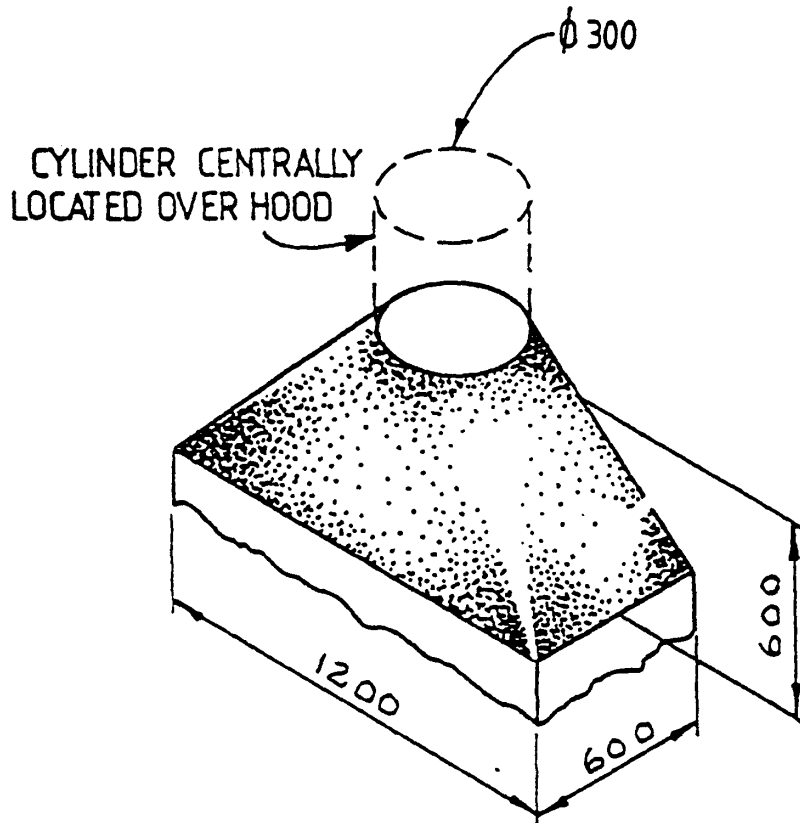


QUESTION 7. (Continued)

EXAMINER'S
USE ONLY

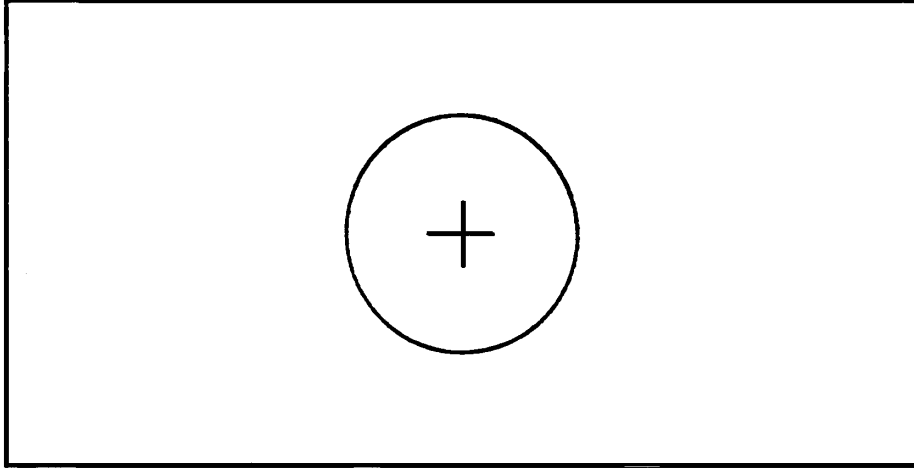
- (b) A pictorial drawing of a range hood is shown below. Draw, using a scale of 1 : 10, a quarter pattern of the development of the surface of the transition between the cylinder and rectangular prism.

A top view is given on page 12.



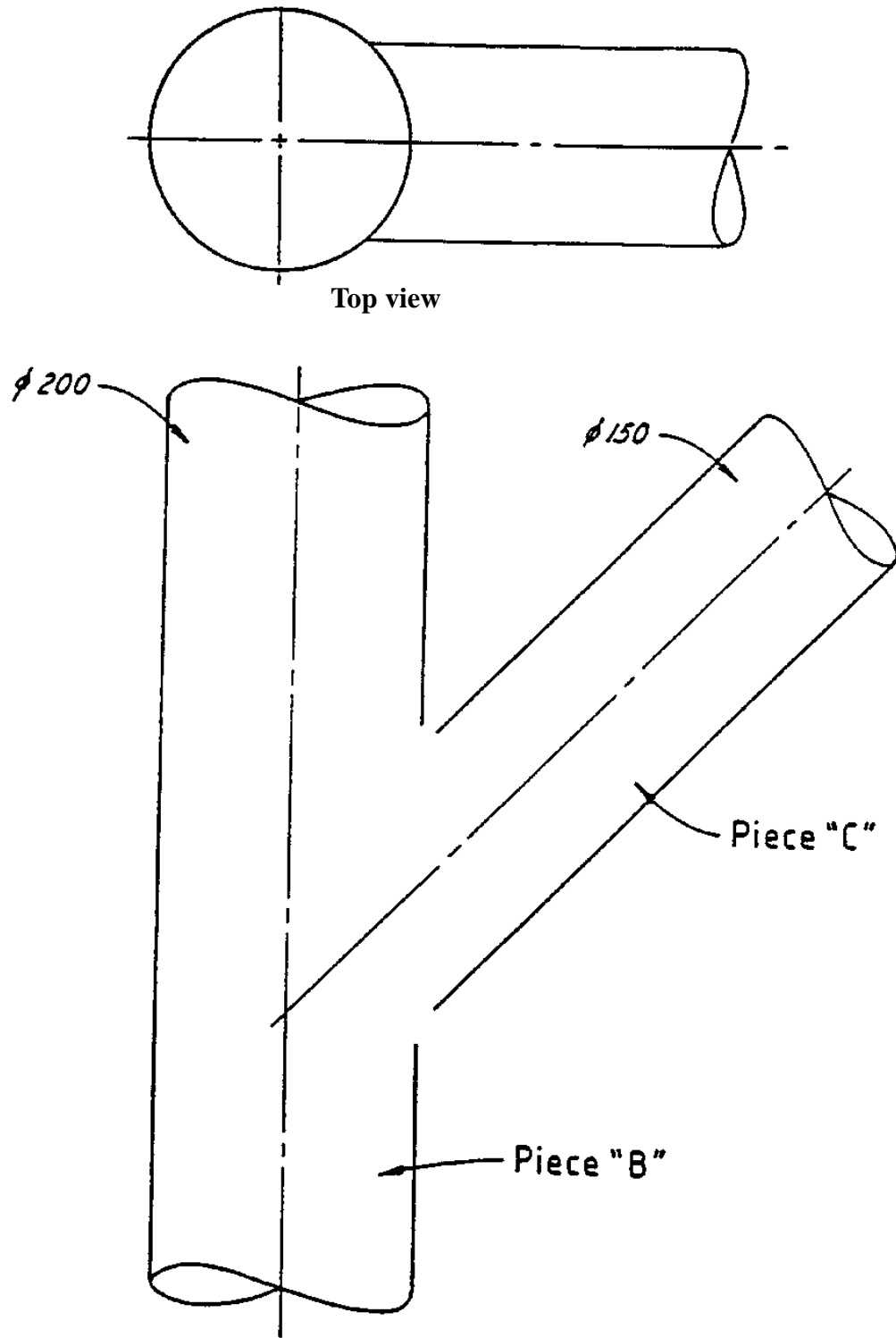
QUESTION 7. (Continued)

EXAMINER'S
USE ONLY



QUESTION 7. (Continued)

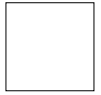
- (c) Cylindrical pieces *B* and *C* are joined as shown in Figure 5. On the drawing provided, clearly show the line of intersection between these two pieces. Show *all* construction.



Front view
Scale 1 : 5
FIG. 5

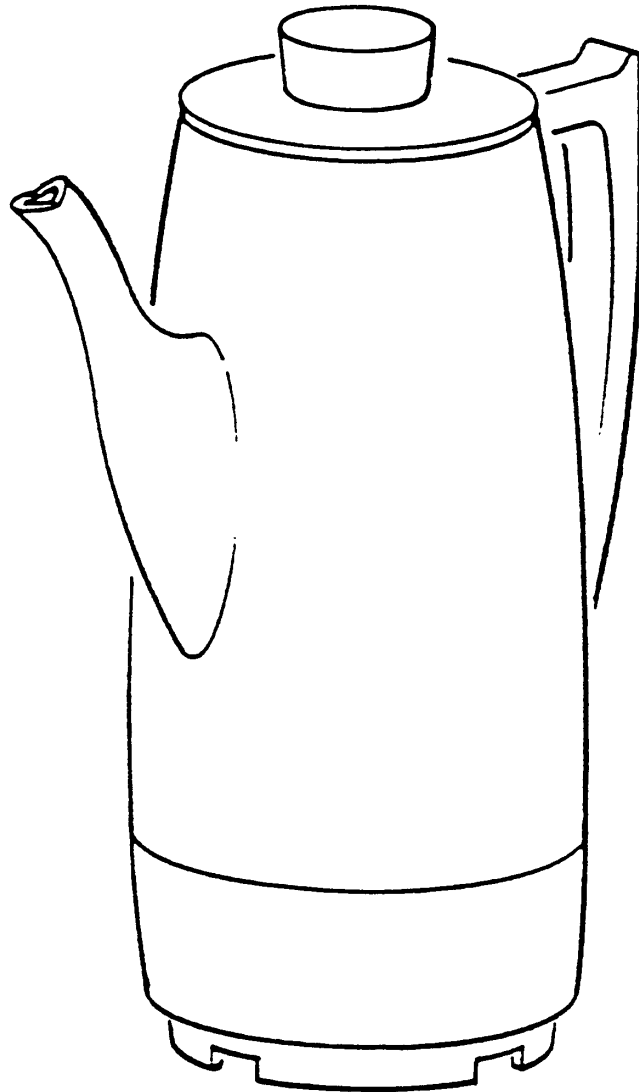
Attempt THREE questions only from Questions 6, 7, 8, and 9.

EXAMINER'S
USE ONLY



QUESTION 8. (5 marks)

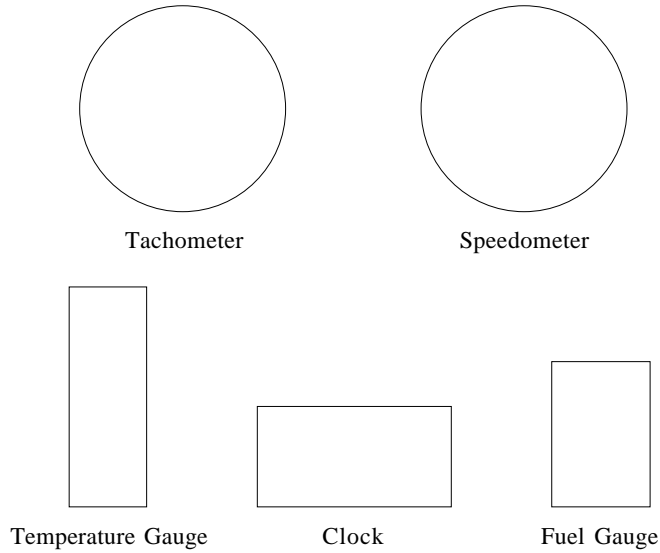
- (a) The fineline drawing below of a coffee percolator is to be rendered suitably as a presentation drawing for an advertising brochure. Use any medium to achieve this task (e.g. ink, marker, or pencil).



QUESTION 8. (Continued)

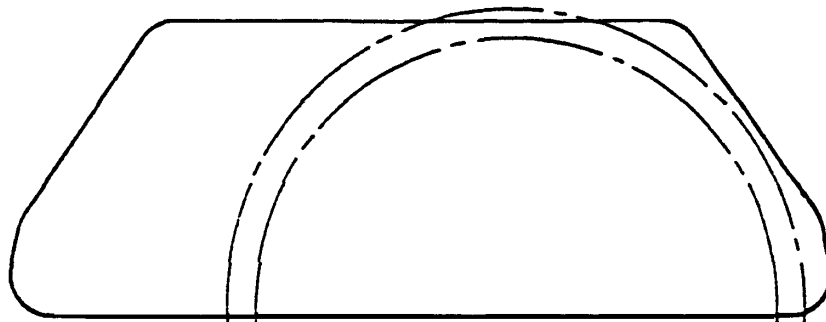
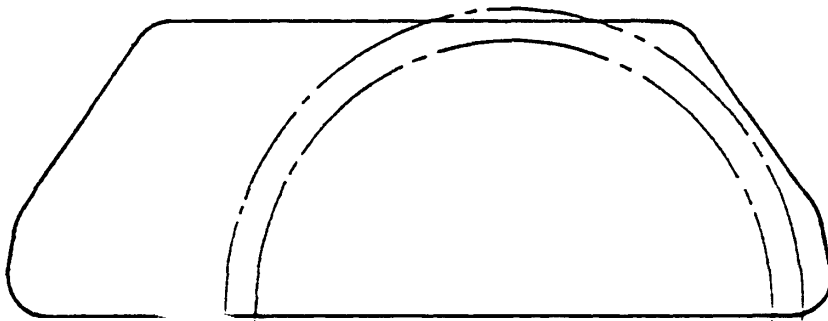
EXAMINER'S
USE ONLY

- (b) The instrument panel of a new family car is to be designed. The shape of the proposed panel has been determined. The shapes of the various gauges that must be included within the panel are shown below.



INSTRUMENT GAUGES

- (i) Draw TWO alternative freehand designs showing all instrumentation in position in the panels provided. The outline of the steering-wheel is shown.



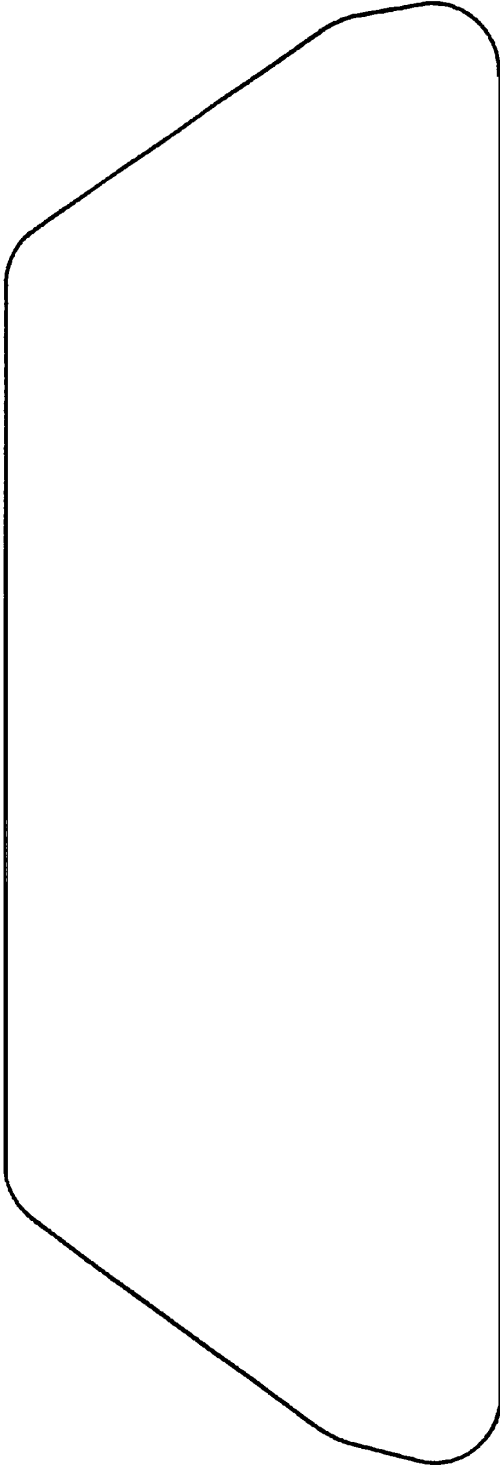
QUESTION 8. (Continued)

EXAMINER'S
USE ONLY

- (ii) Make an accurate presentation drawing of the panel.

This drawing may be similar to either of the design sketches, or a composite of both.

- (iii) Using media of your choice, render the drawing.



Presentation Drawing

Attempt THREE questions only from Questions 6, 7, 8, and 9.

EXAMINER'S
USE ONLY



QUESTION 9. (5 marks)

A draughtsperson is required to prepare a set of drawings of a timber-framed bar stool as shown in Figure 6 on page 18. A number of drawing types will be used to complete the project.

(a) Suggest the major characteristics of the following types of drawing. Give an application for each drawing type as part of the set of drawings for the bar stool.

(i) **Freehand drawing**

Characteristic

Application

(ii) **Detail drawing**

Characteristic

Application

(iii) **Assembly drawing**

Characteristic

Application

(iv) **Rendered pictorial drawing**

Characteristic

Application

(b) The draughtsperson can either produce the drawings in a conventional way, with pen and paper, or use a computer to generate the drawings.

State ONE advantage and ONE disadvantage of each method of drawing.

(i) **Pen and paper**

Advantage

.....

Disadvantage

.....

QUESTION 9. (Continued)

EXAMINER'S
USE ONLY

(ii) **Computer**

Advantage

.....

Disadvantage

.....

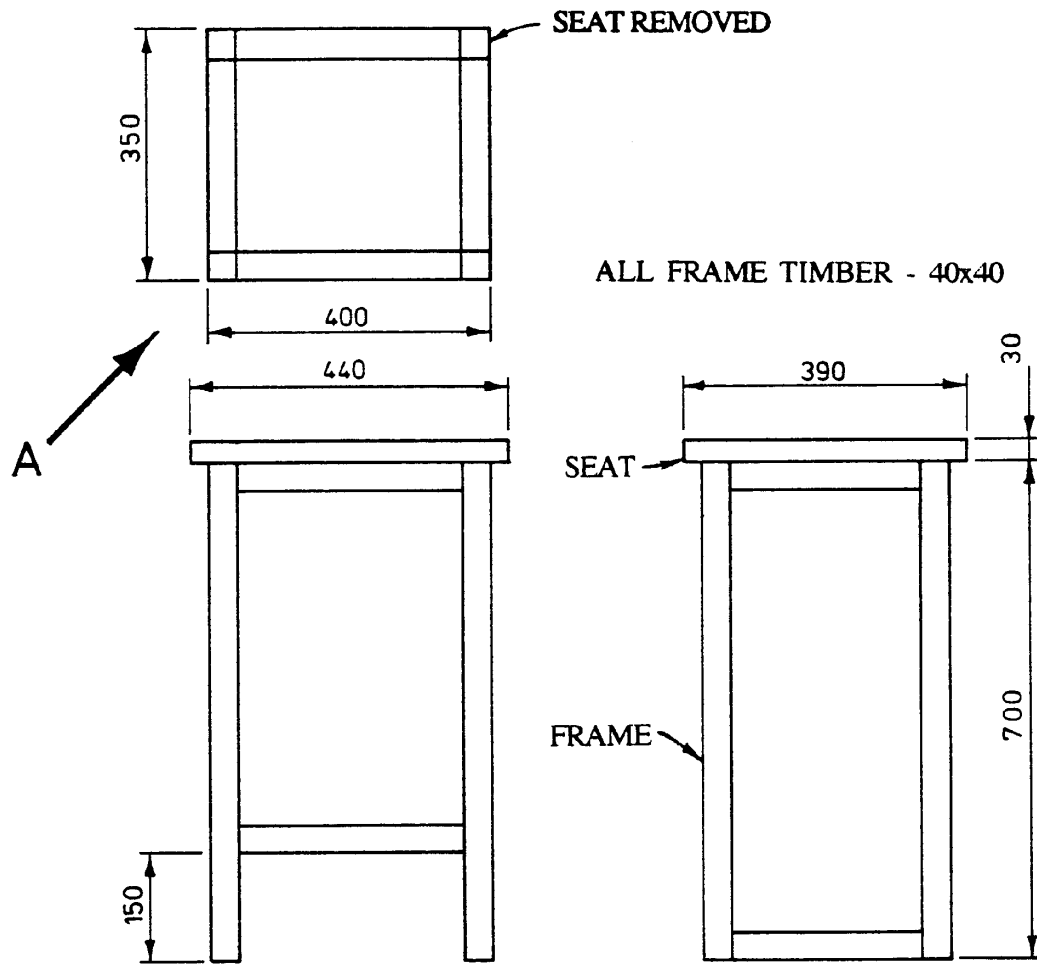


FIG. 6

QUESTION 9. (Continued)

EXAMINER'S
USE ONLY

- (c) Using the orthogonal drawing in Figure 6.
- (i) Make an exploded isometric drawing of the two main parts of the stool (frame and seat) when viewed from A.
Use a scale of 1 : 10 and the appropriate starting points for each part.
 - (ii) Render the completed drawing.

Start seat here**Start frame here**

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