29.12 DRAWING & DESIGN (449)

29.12.1 Drawing & Design Paper 1 (449/1)

SECTION A (40 marks)

*Answer **all** the questions in this section on the answer sheets provided.*

1 (a) Give **one** disadvantage of oral communication when representing an engineering object. **(1 mark)**

(b) Give **two** reasons for observing established standards in the manufacturing industry. **(2 marks)**

2 (a) Sketch each of the following lines:

(i) hidden details;

(ii) folding line;

(iii) centre line;

(iv) cutting plane. **(2 marks)**

(b) State the meaning of each of the following conventions:

(i)  _____

(ii)  _____

(iii)  _____

(iv)  _____

(2 marks)

3 With the aid of sketches, describe the use and construction of a tee-square indicating the materials used. **(3 marks)**

4 (a) Figure 1 shows three views of a block in third angle projection.

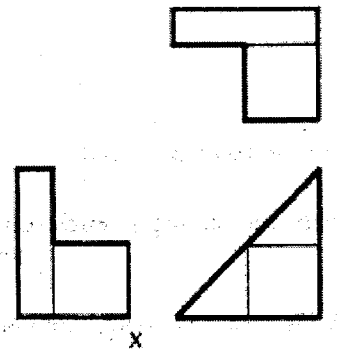


Figure 1

Sketch the block in isometric view, taking corner x as the lowest point. (3 marks)

(b) Figure 2 shows three views of a block drawn in first angle projection.

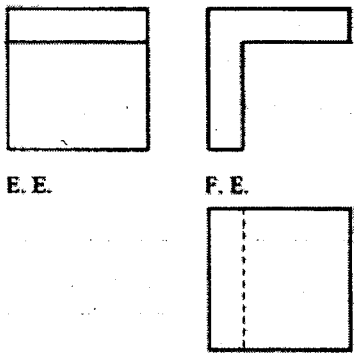


Figure 2

Sketch a two-point perspective view of the block with the varnishing points above the ground level. (2½ marks)

5 Construct a regular pentagon given that the length of one side is 45 mm.

(3 marks)

6 Construct a diagonal scale 1:5 to measure to the nearest 1 mm up to a maximum of 800 mm. Show a reading of 463 mm. (3½ marks)

7 A rectangle has width and length in ratio of 1:3 with the width as 30 mm. Construct a square equal in area to the rectangle and measure the size of the square.

(4 marks)

A right square prism is truncated along X-X as shown in figure 3.

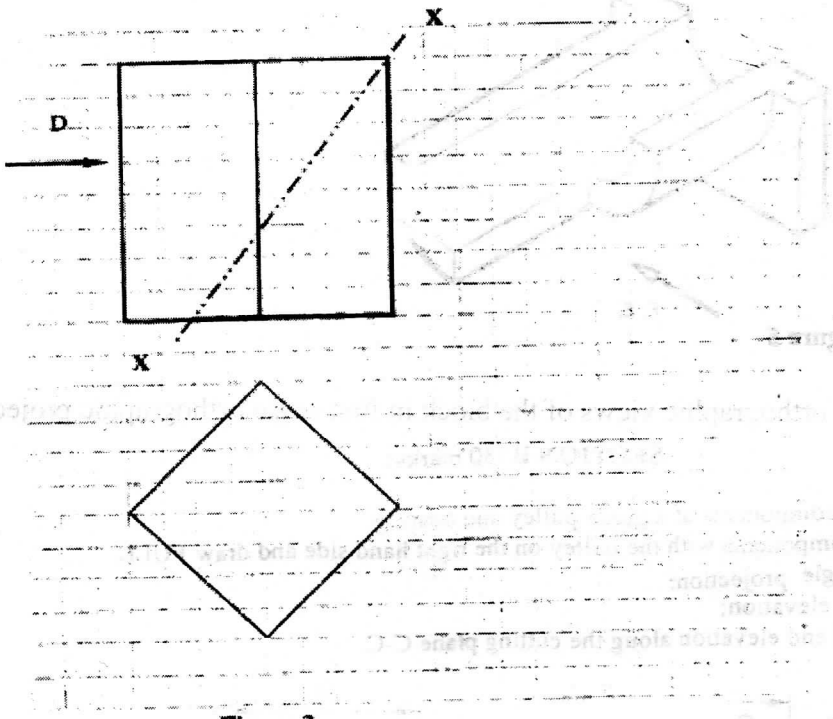


Figure 3

Complete the plan and sketch the front elevation in the direction of arrow D.

(4 marks)

9 Figure 4 shows the three views of a bracket, drawn in first angle projection.

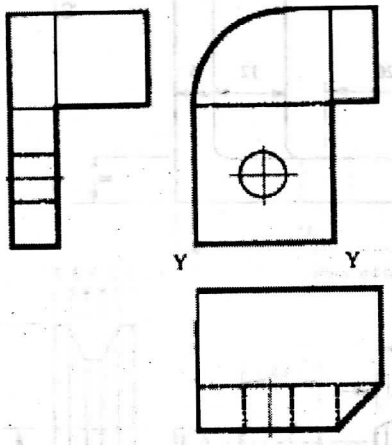


Figure 4

Sketch an oblique view of the bracket with Y-Y as the lowest edge.

(4 marks)

10 Figure 5 shows an isometric view of a machined block.

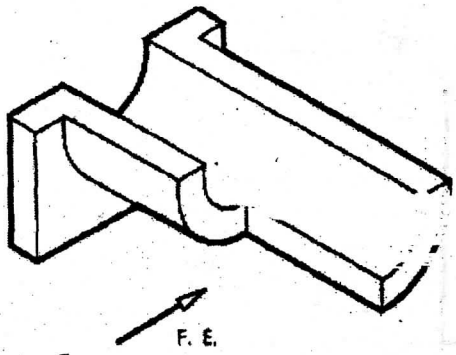


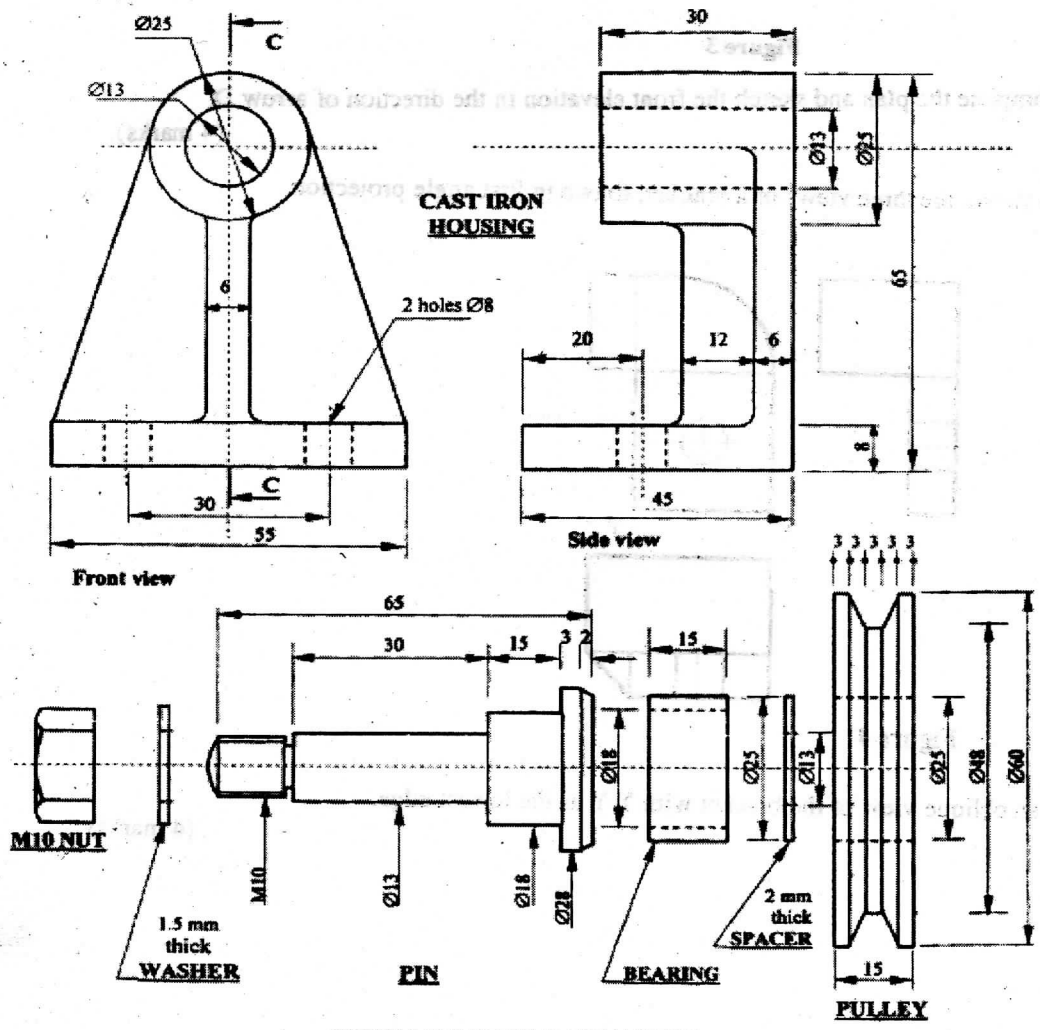
Figure 5

(6 marks)

Sketch the orthographic views of the block in first angle orthographic projection.

SECTION B (30 marks)

11 Figure 6 shows components of a guide pulley and bearing.
Assemble the components with the pulley on the right hand side and draw FULL SIZE in third angle projection:
(a) the front elevation;
(b) sectional end elevation along the cutting plane C-C.



GUIDE PULLEY & BEARING

Figure 6

SECTION C (30 marks)

Answer any two questions from this section.

12 Figure 7 shows three views of a bracket in first angle projection.

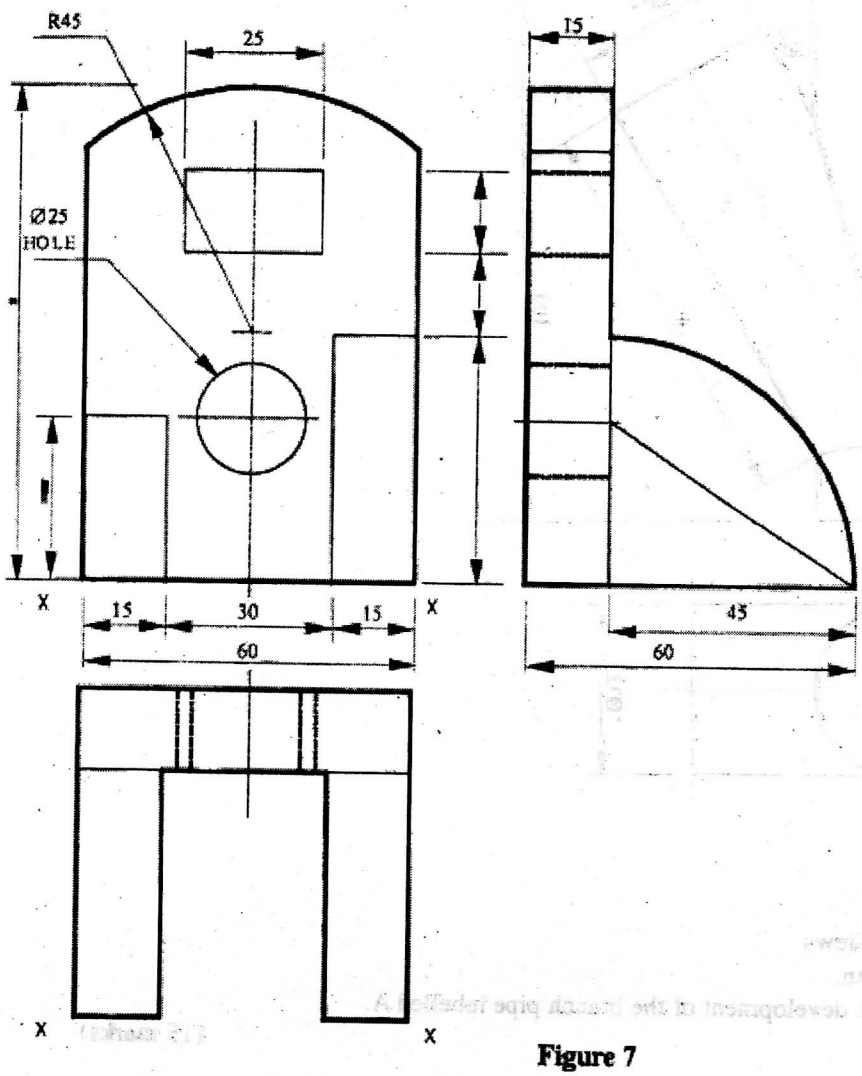


Figure 7

Draw, full size, the oblique view of the bracket with X-X as the lowest edge.

(15 marks)

13 Figure 8 shows the intersection of two pieces of pipe of equal diameter at 30°.

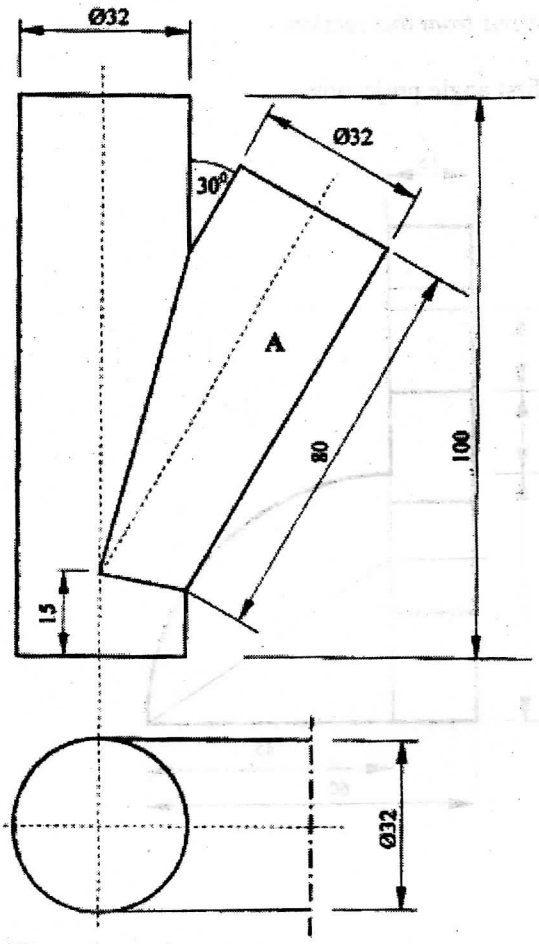


Figure 8

(a) Copy the given views.
(b) Complete the plan.
(c) Draw the surface development of the branch pipe labelled A.

(15 marks)

14 Figure 9 shows layout plan of a three-bedroomed house.

Sketch the elevations 01, 02, 03 and 04 and indicate the main features on each. (15 marks)

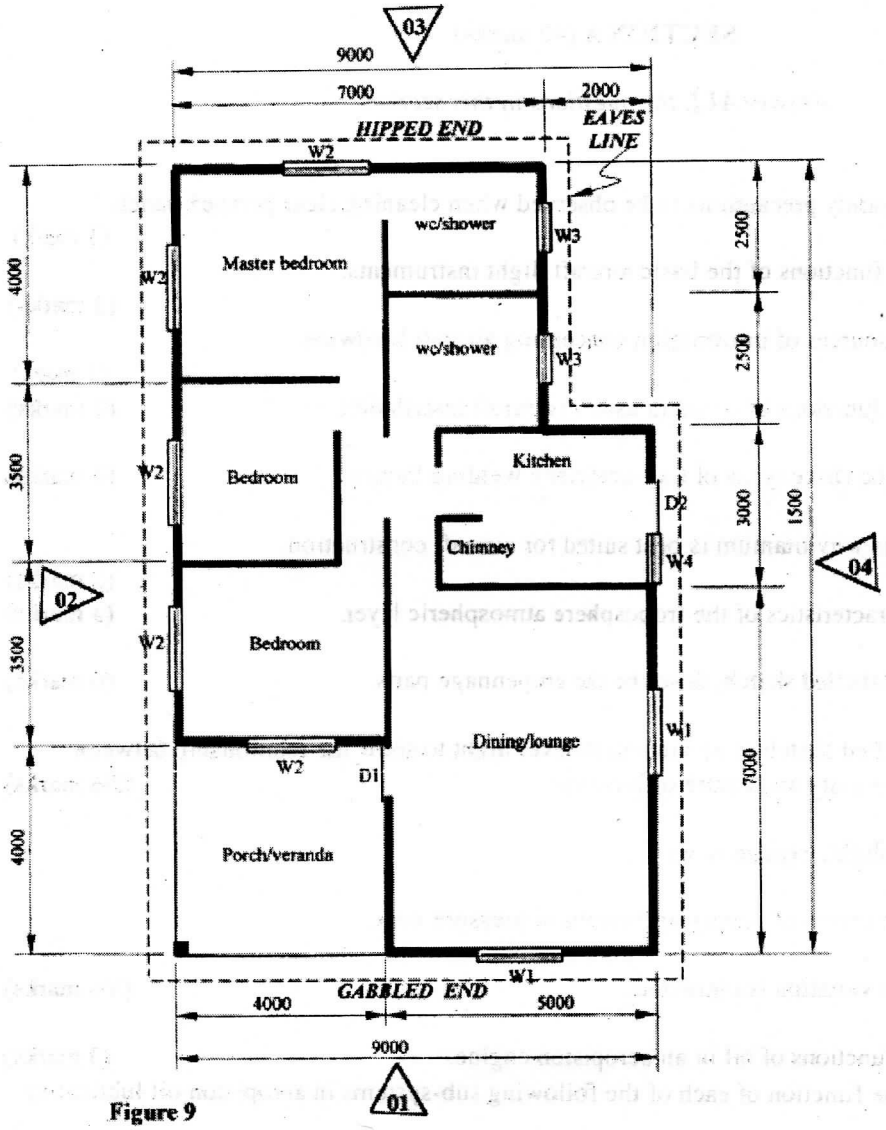


Figure 9

SPECIFICATIONS:

Doors:	D1	2100 x 1000
	D2	2100 x 900
Windows:	W1	1500 x 1500
	W2	1500 x 1000
	W3	1000 x 600
	W4	1000 x 1000
Roof:	Pitch 30°	
Ceiling height:	2600	