

3.21.1 Drawing and Design Paper 1 (449/1)

SECTION A (50 marks)

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

- 1 (a) List **four** characteristics of a good technical drawing paper. (2 marks)
- (b) Given that paper size A_4 is 210 x 297. Determine the sizes of the following paper sizes
- (i) A_0 ;
- (ii) A_3 . (2 marks)
- (c) State **two** precautions in handling a T-square. (2 marks)
- 2 (a) List **six** computer programmes that can be used to produce a drawing. (3 marks)
- (b) Define the term “mock-up” and state its purpose in the design process. (2 marks)
- 3 Name the **three** groups of metals and give **one** example in each group. (3 marks)
- 4 (a) **Figure 1** is drawn to scale of 1:2.

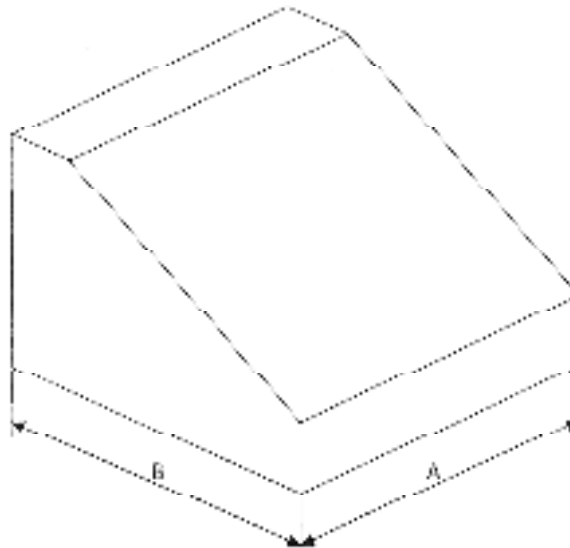


Figure 1

Determine:

- (i) distance A;
- (ii) the angle of the slanting face. (3 marks)
- (b) Sketch to show how the diameters of eccentric circles on a solid piece can be dimensioned. (3 marks)

5 Define the following terms as applied to business enterprises:

- (a) fixed assets;
- (b) deficit;
- (c) liability.

(3 marks)

6 **Figure 2** shows two views of two parts of a machine component drawn in first angle projections. Sketch the assembled parts in oblique projection. (6 marks)

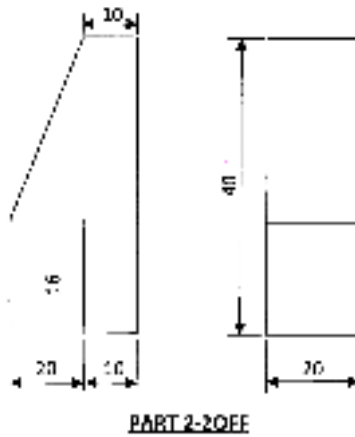
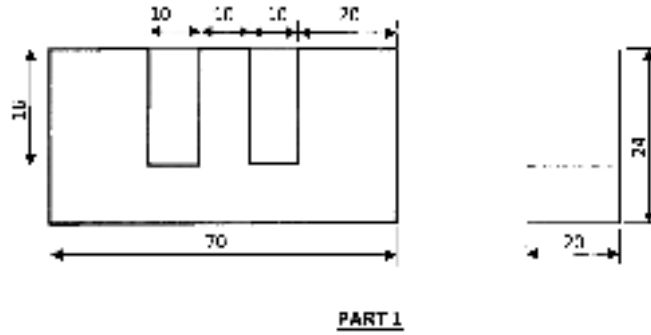


Figure 2

7 **Figure 3** shows the front elevation and an incomplete plan of a truncated square-based pyramid:

- (a) complete the plan;
- (b) draw the true shape of the cut face.

(5 marks)

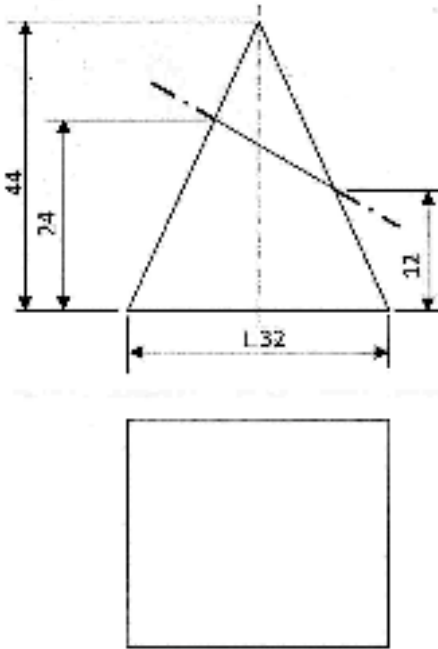


Figure 3

8 Draw the locus of the end of a string when it is unwound from a 30 mm square prism for one complete revolution. (6 marks)

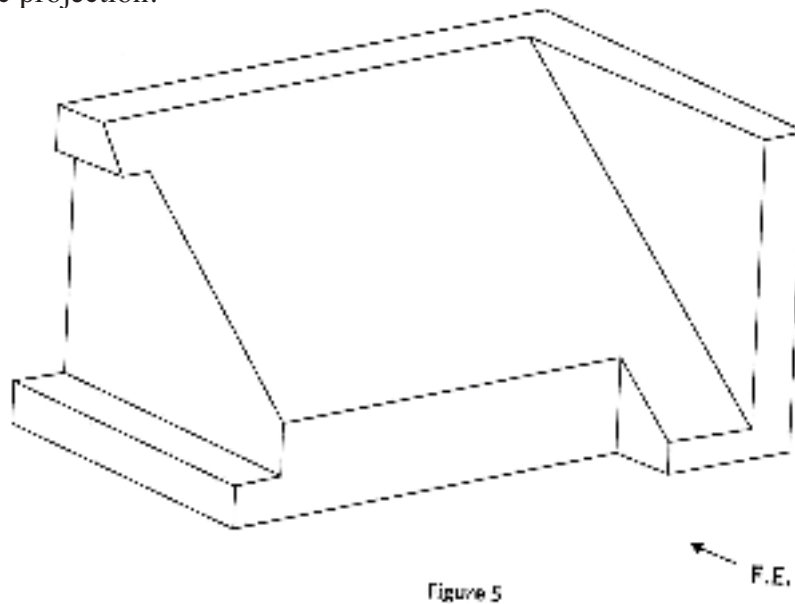
9 **Figure 4** shows a block drawn in first angle projection. Sketch the block in oblique taking AB as the lowest edge. (4 marks)



Figure 4

- 10 **Figure 5** shows an isometric block. Sketch three views of the block in first angle orthographic projection.

(6 marks)



SECTION B (20 marks)

*This question is **compulsory**. Candidates are advised to spend not more than one hour on this question.*

- 11 **Figure 6** shows parts of a mechanical component drawn in first angle projection. Assemble the parts and draw FULL SIZE, the following:

- (a) sectional front elevation along the cutting plane P-P;
- (b) end elevation;
- (c) insert three leading dimensions.

Unspecified dimensions are left to the candidates discretion. Hidden details are not required.
(Use the A3 paper provided).

(20 marks)

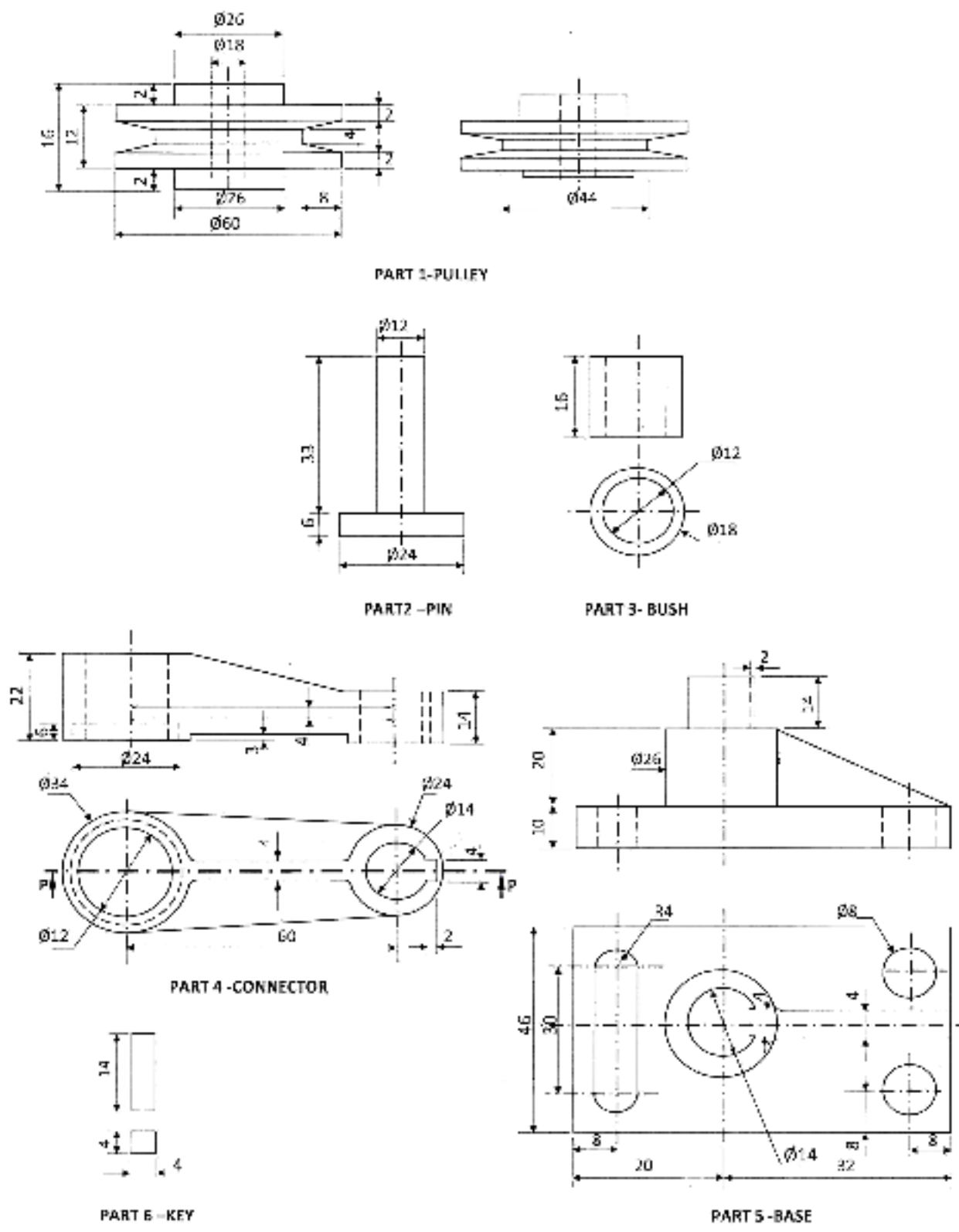


Figure 6

SECTION C (30 marks)

Answer any *two* questions from this section.

12 **Figure 7** shows the front elevation and an incomplete plan of a truncated hexagonal prism.

- (a) copy the views and complete the plan;
- (b) draw the surface development of the prism (omit the flaps).

(15 marks)

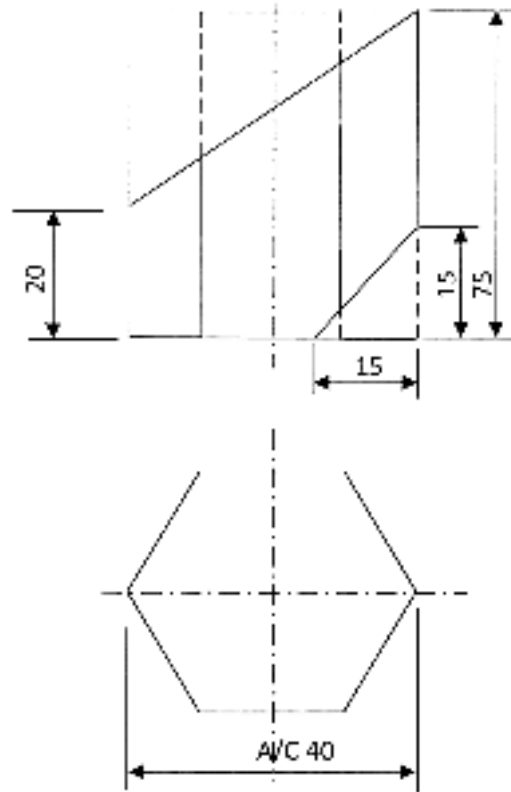


Figure 7

13 **Figure 8** shows an inclined plan of a block and its front elevation.

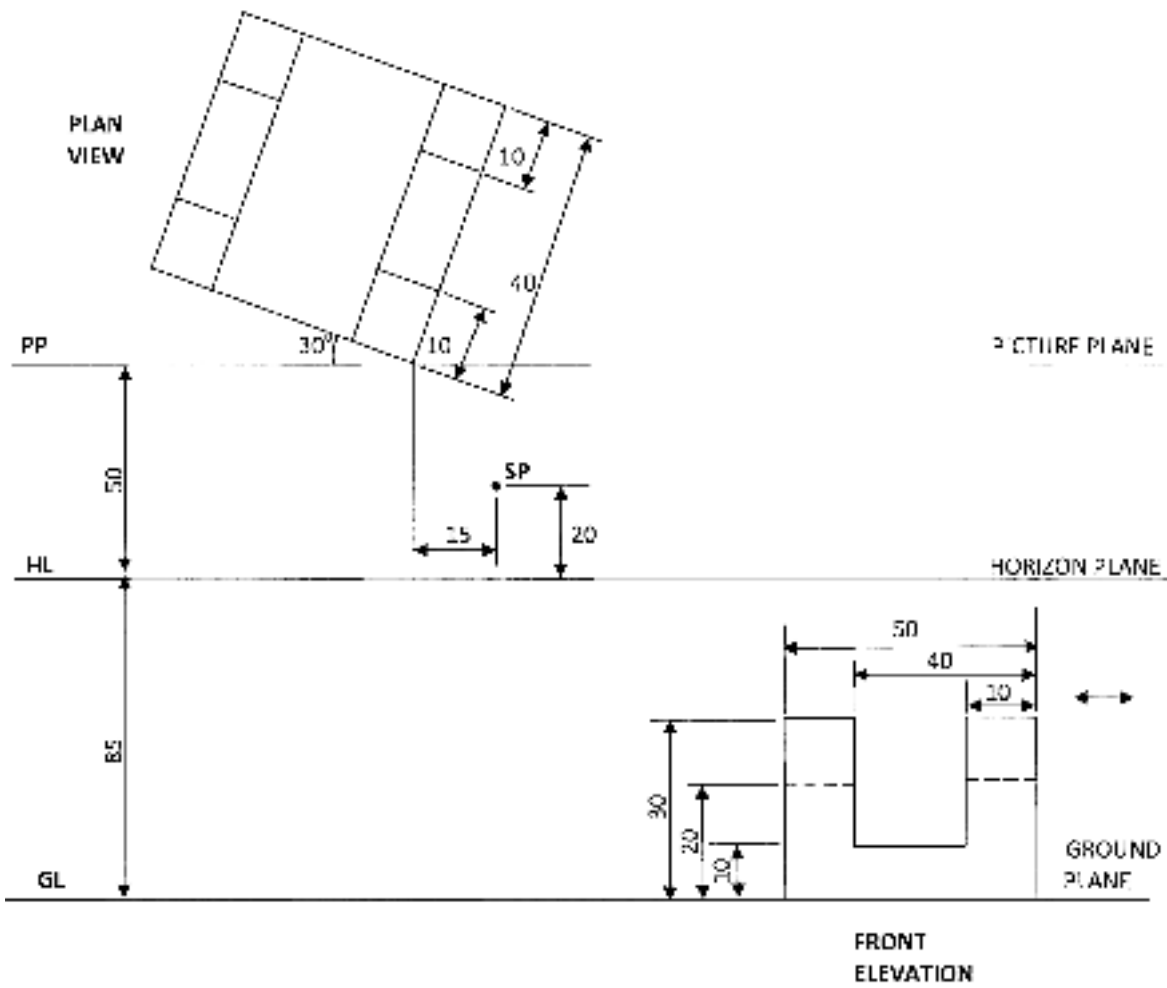


Figure 8

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Copy the given layout and draw the two point perspective of the block showing all construction details. (15 marks)

14 Figure 9 shows two intersecting square tubes A and B drawn in 1st angle projection.

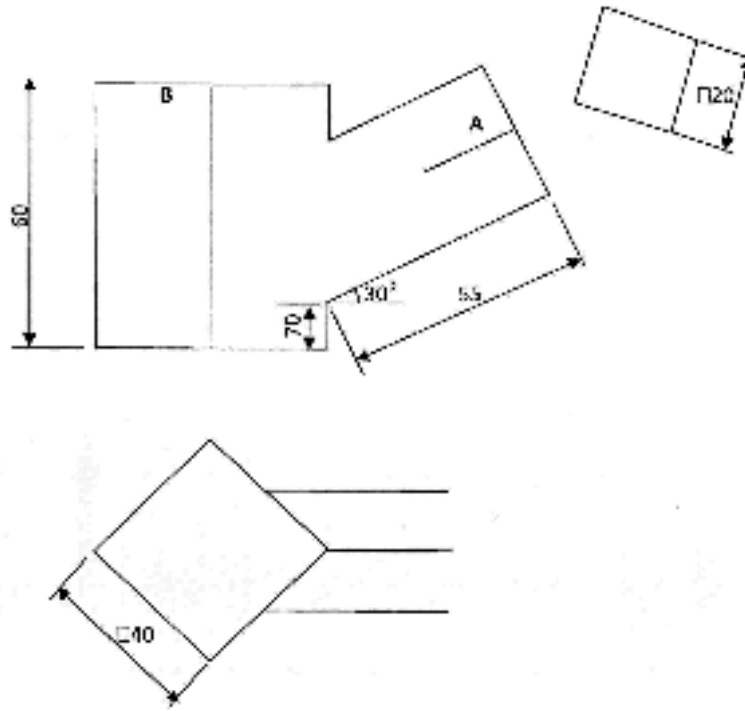


Figure 9

- (a) copy the figure and complete:
 - (i) the front elevation
 - (ii) the plan.
- (b) Draw the development of tube B.

(15 marks)