The contour map (Section C):

Contour values shown along the left scale from top to bottom: 55, 50, 45, 50, 50, 55, 50, 45, 50, 55, 50, 45, 40, 35, 30, 35, 40, 45, 50

Survey points marked: C, A, B, E, G, F, D

This Contour Map is part of Section C and should only be used for the answering of the Geologic Geometry Option (Question C-1)

Pre-Leaving Certificate Examination, 2010

Design & Communication Graphics
Ordinary Level
Section A (60 Marks)

Time: 3 Hours

This examination is divided into three sections:

SECTION A (Core - Short Questions)
SECTION B (Core - Long Questions)
SECTION A (Applied Graphics - Long Questions)

SECTION A
- Four questions are presented
- Answer **any three** on the A3 sheet overleaf
- All questions in Section A carry **20 marks**

SECTION B
- Three questions are presented
- Answer **any two** on drawing paper
- All questions in Section B carry **45 marks**

SECTION A
- Five questions are presented
- Answer **any two** (i.e. the options you have studied) on drawing paper
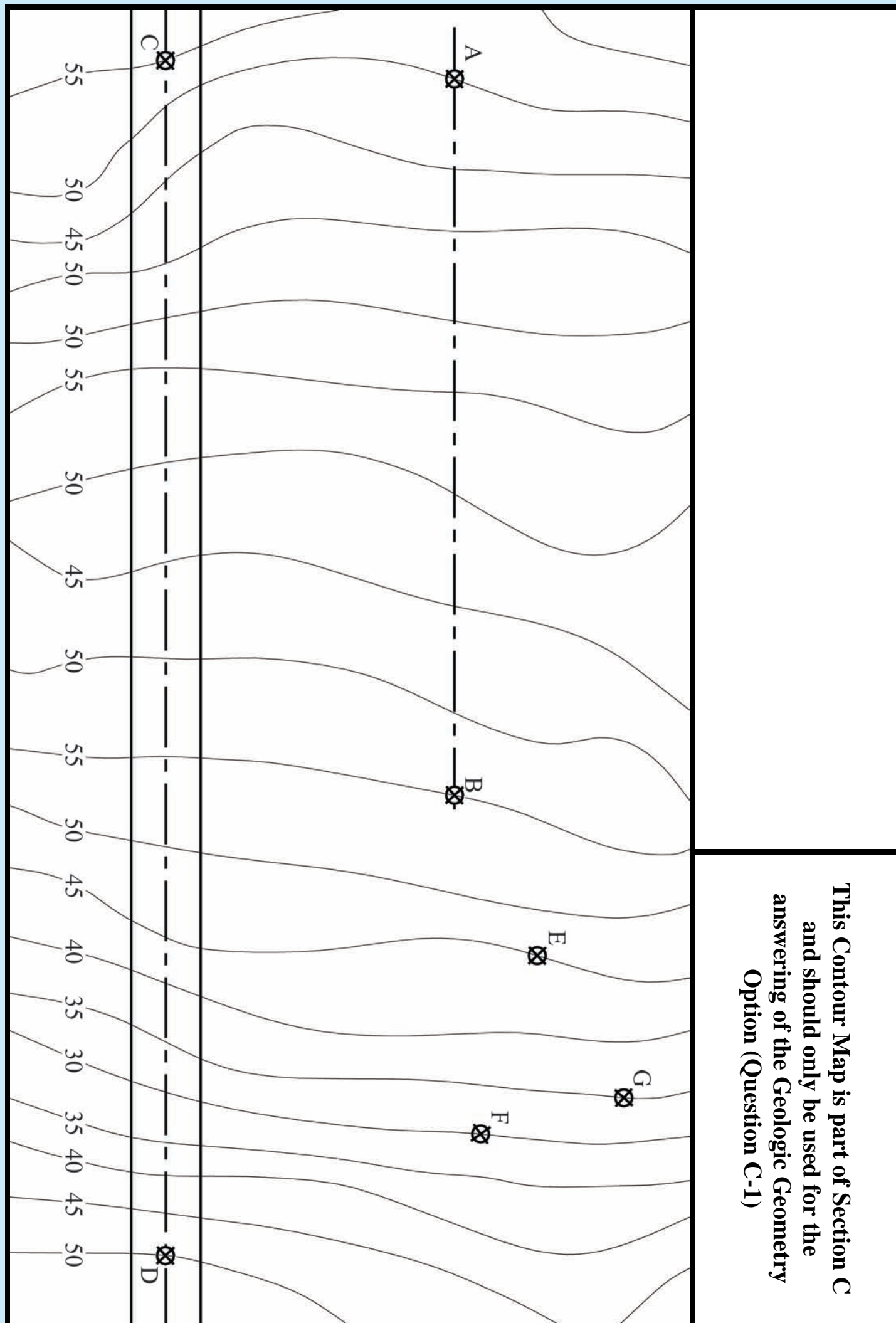- All questions in Section C carry **45 marks**

General Instructions:
- *Construction lines must be shown on all solutions*
- *Write the question number distinctly on the answer paper in Sections B and C*
- *Work on one side of the drawing paper only*
- *All dimensions are given in metres or millimetres*
- *Write your name, school name and teacher name in the box below and on all other sheets used*
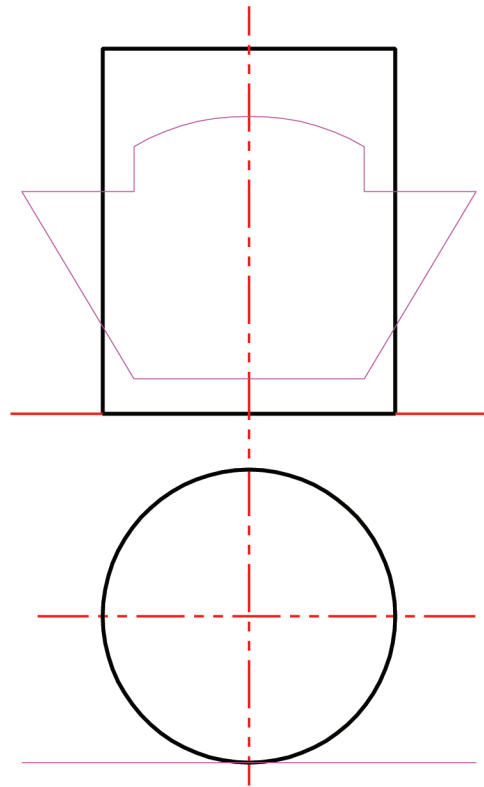
Name:

School Name:

Teacher Name:

A-1. A photograph of a tin of baked beans is shown.

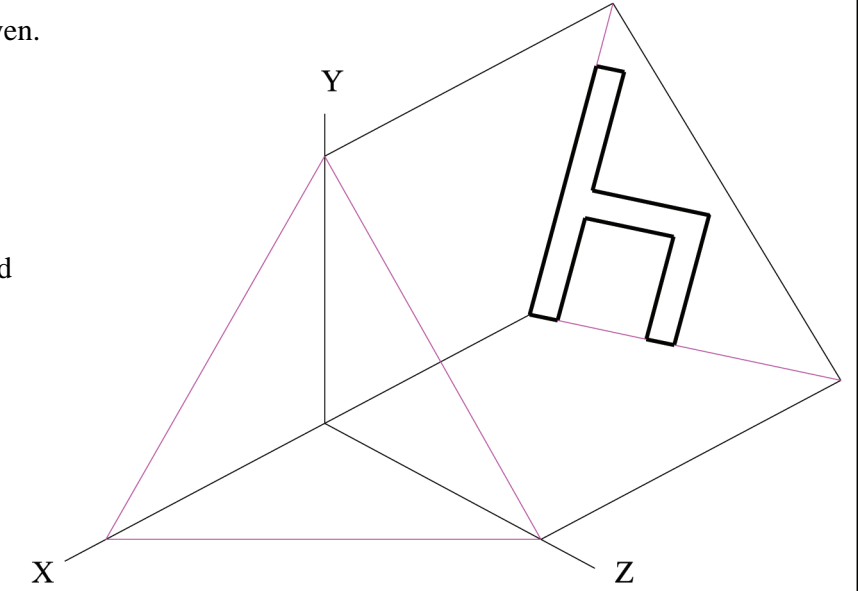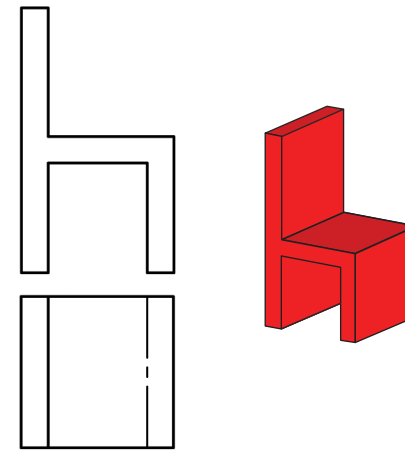The drawing on the right shows the plan and elevation of the tin and the label which is to be wrapped around it.

Complete the elevation showing the label in the wrapped position.

A-3. The plan and elevation of a chair are shown below. A 3D graphic is also given.

A set of isometric axes is shown on the right and an elevation of the object has been positioned relative to the axis as shown.
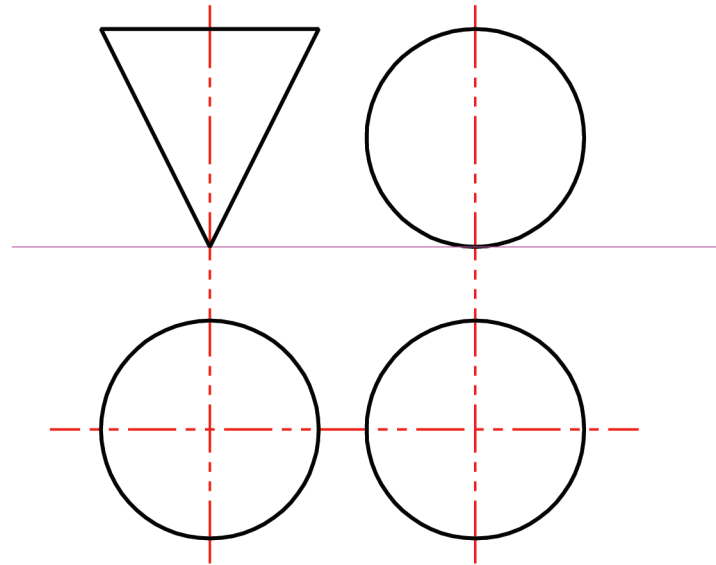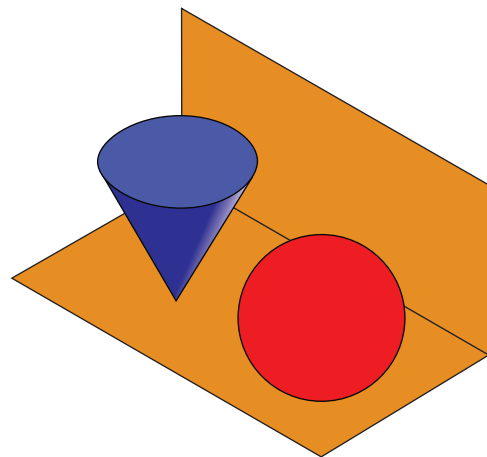
Draw the plan in its correct position and compete the axonometric projection.

A-2. The 3D graphic below shows a cone and a sphere sitting on the horizontal plane.
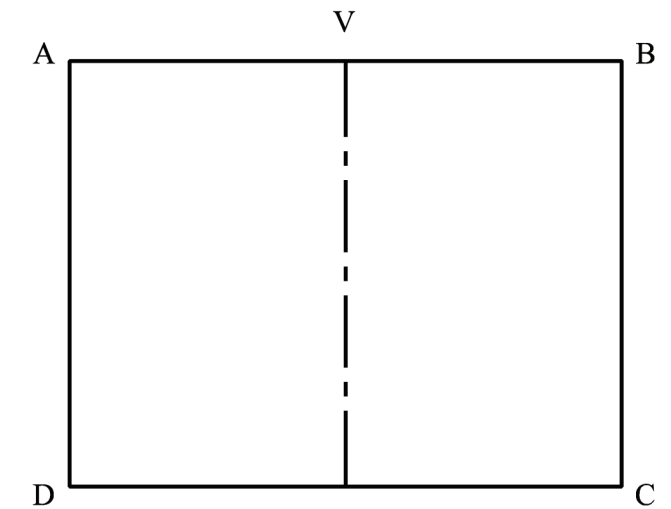
The drawing shows the plan and elevation of the solids.

Show the projections of a sphere of diameter 25mm which rests on the horizontal plane and is in contact with both solids.

A-4. A photograph of a bridge with a parabolic support is shown.

Draw the outline of the parabola in the rectangle ABCD. The vertex of the parabola should be positioned at V.

This examination paper must be returned at the end of the Examination – You must include your Name, School Name and Teacher Name on the front cover

2010 L.84_A 2/16   2010 L.84_A 15/16

Pre-Leaving Certificate Examination, 2010

Design & Communication Graphics
Ordinary Level
Section B and C *(180 Marks)*

Time: 3 Hours

This examination is divided into three sections:

SECTION A   (Core - Short Questions)
SECTION B   (Core - Long Questions)
SECTION C   (Applied Graphics - Long Questions)

SECTION A
- Four questions are presented
- Answer **any three** on the accompanying A3 examination paper
- All questions in Section A carry **20 marks**

SECTION B
- Three questions are presented
- Answer **any two** on drawing paper
- All questions in Section B carry **45 marks**

SECTION C
- Five questions are presented
- Answer **any two** (i.e. the options you have studied) on drawing paper
- All questions in Section C carry **45 marks**

General Instructions:
- *Construction lines must be shown on all solutions*
- *Write the question number distinctly on the answer paper in Sections B and C*
- *Work on one side of the paper only*
- *All dimensions are given in metres or millimetres*
- *Write your name, school name and teacher's name in the box provided on Section A and on all other sheets used*
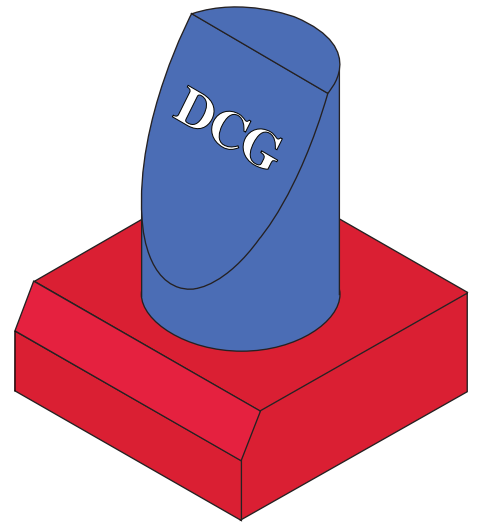
SECTION B - Core
Answer **Any Two** questions from this section on drawing paper

B-1. The 3D graphic on the right shows a DCG student of the year trophy. Fig. B-1 shows the plan and elevation of a square based solid which is to be cut by the oblique plane VTH to form the trophy.

(a) Draw the given plan and elevation.

(Details of the text are not required.)

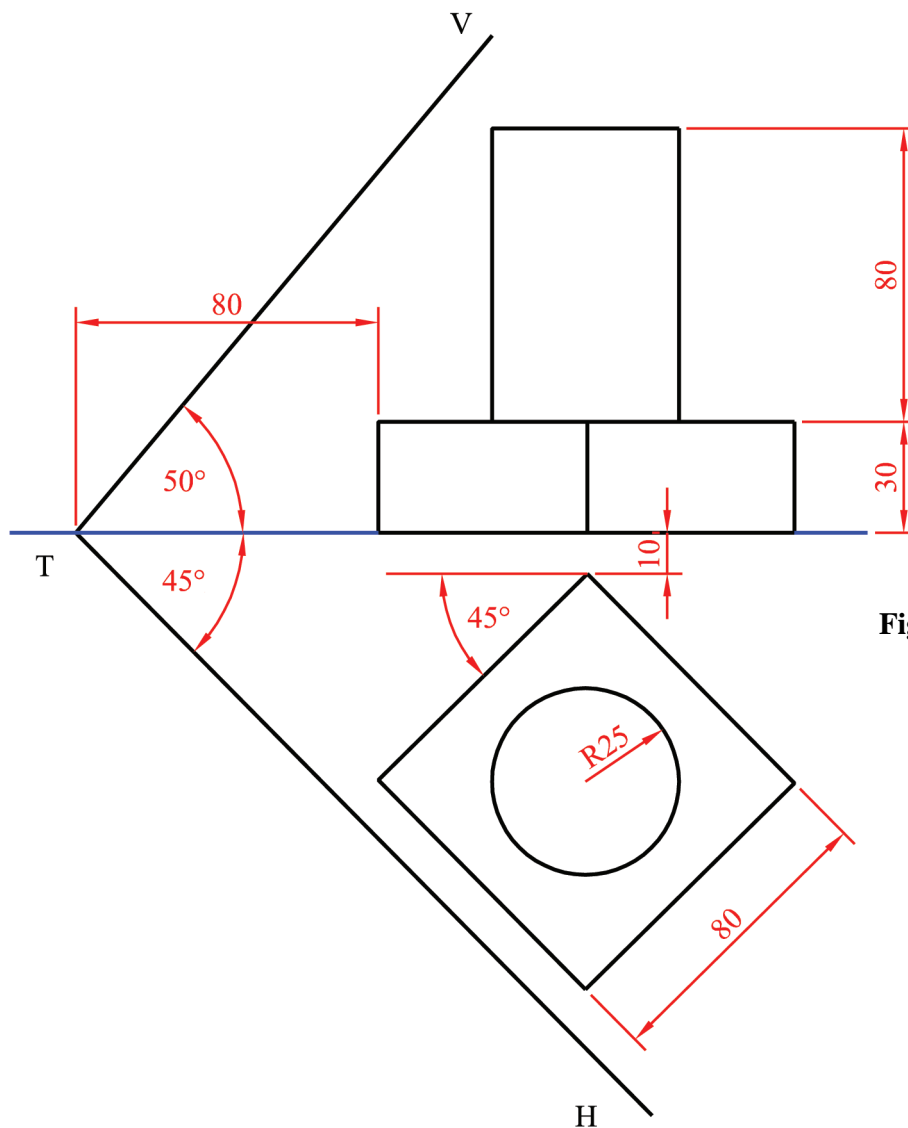**(b)** Draw the projections of the solid when cut by the oblique plane VTH.

Scale 1:1

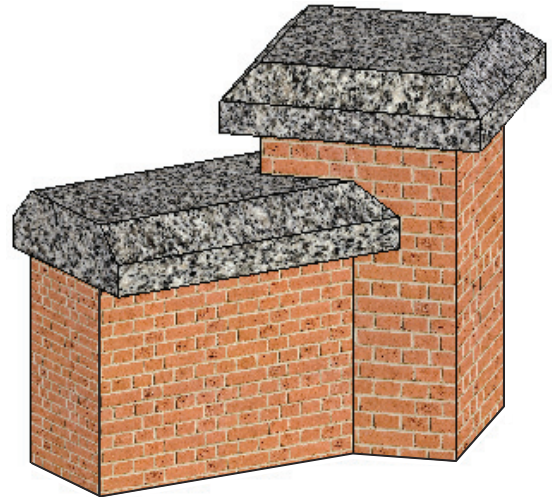V

80

80

50°

30

T

45°

10

45°

Fig. B-1

R25

80

H

B-2. The 3D graphic on the right shows a portion of a brick garden wall and pier. A granite capping sits on both.

Fig. B-2 below shows the plan and elevation of the wall, pier and capping.

Draw the given plan and elevation and project an end elevation of the structure.
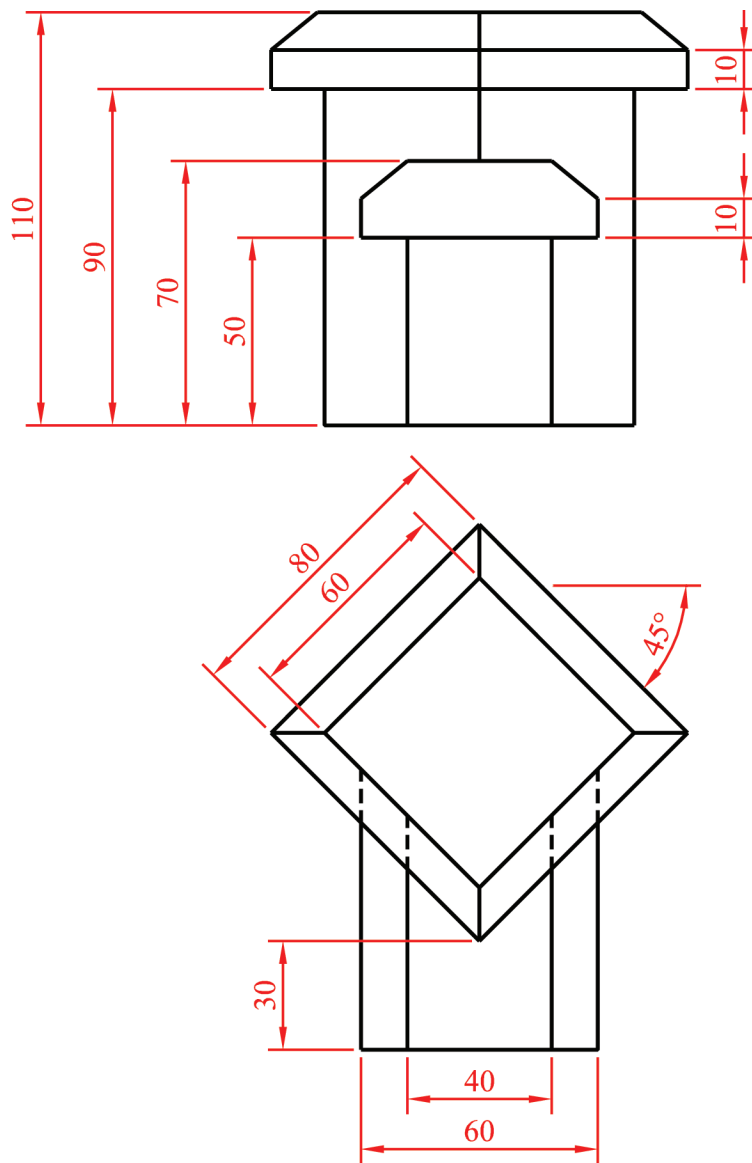
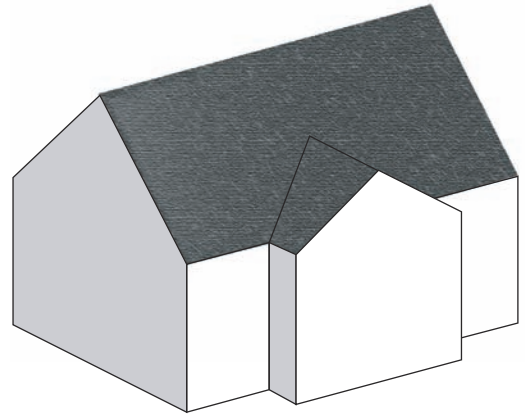Show all lines of interpenetration.

Scale 1:1

Fig. B-2

B-3. The 3D graphic on the right shows a house model.

Fig. B-3 below shows the elevation and plan of the house model.

Make a perspective drawing of the house given the following:

- The spectator point is 360mm from corner A;
- The picture plane is touching corner A;
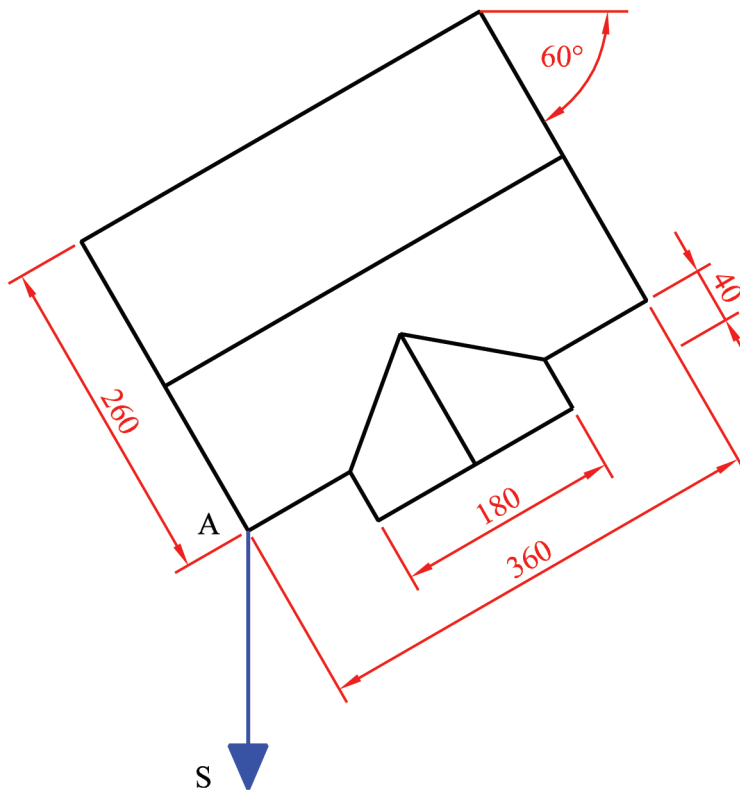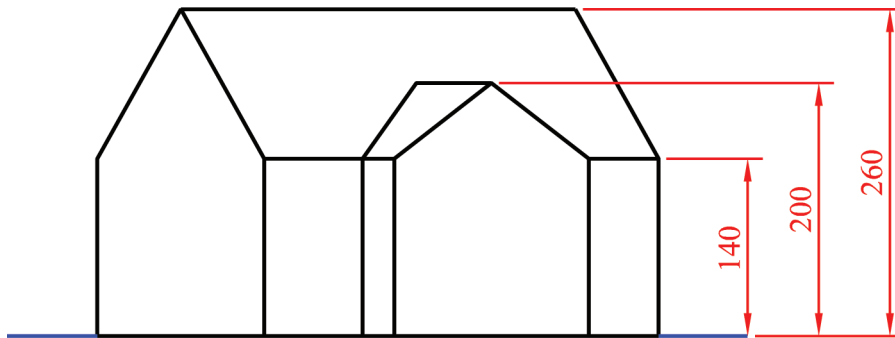- The horizon line is 300mm above the ground line.

Scale 1:4

Fig. B-3

SECTION C - Applied Graphics
Answer **Any Two** questions (i.e. the options you have studied)
from this section on drawing paper

Geologic Geometry

C-1. The accompanying map, located on the back page of section A, shows ground contours at five metre vertical intervals.

(a) On the drawing supplied, draw a vertical section (profile) on the line AB.

(b) CD is the centreline of a proposed roadway which is level at an altitude of 30m.

Using side slopes of 1 in 1 for the cuttings, complete the earthworks necessary to accommodate the roadway.

(c) E, F and G are outcrop points on the surface of a stratum of ore.
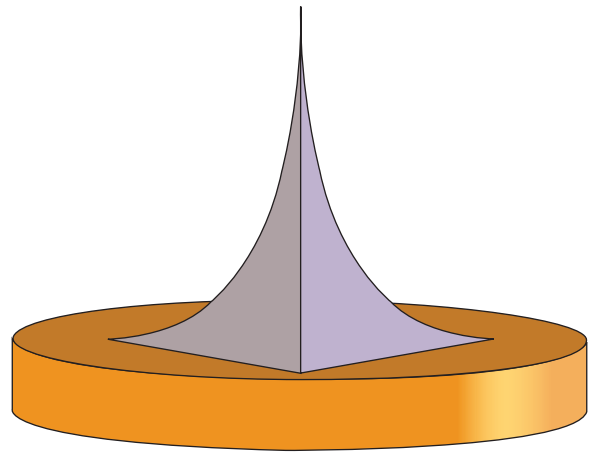Determine the dip and strike of the stratum.

Scale 1:1000

Structural Forms

C-2. A 3D graphic of a trophy for a sailing competition is shown.

Fig. C-2 below shows the plan and elevation of the trophy. The outline of the base is elliptical. Hyperbolic paraboloids ABCD and BCDE complete the trophy.

(a) Draw the given plan and elevation.

(b) Project an end elevation of the trophy.
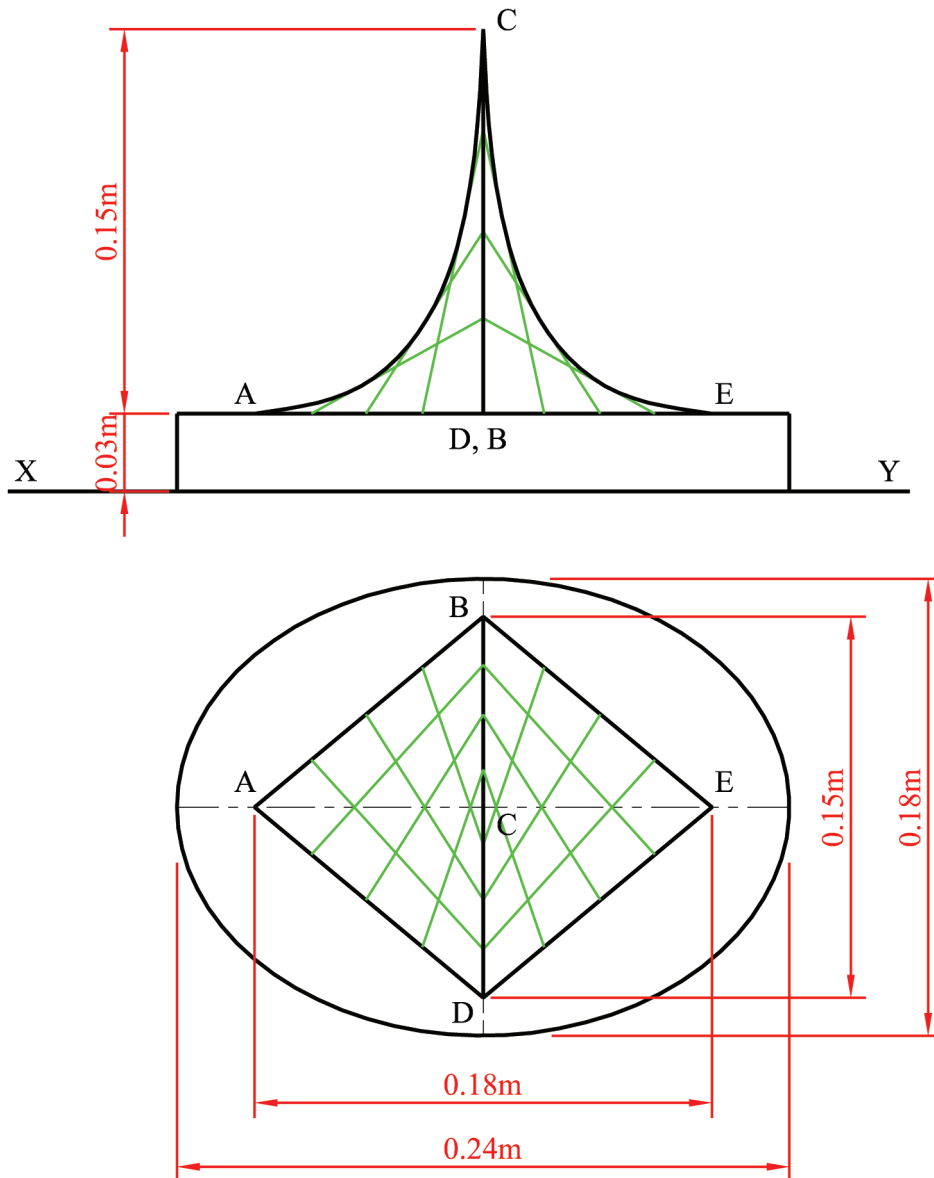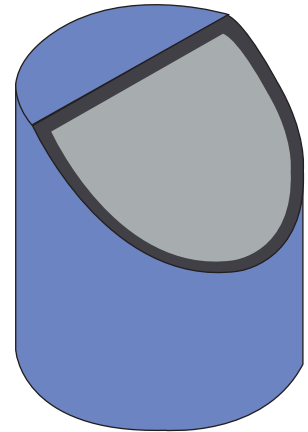
Scale 1:2

Fig. C-2

Surface Geometry

C-3. The 3D graphic on the right shows a kitchen dustbin.

Fig. C-3 below shows the plan and elevation of the bin.

(a) Draw the given plan.

(b) Draw a development of the curved surface of the bin.

(c) Find the true shape of the sloping surface of the bin.
(Include the detail of the opening)

(d) Find and indicate, in degrees, the dihedral angle between the sloping surface and the top surface of the bin.
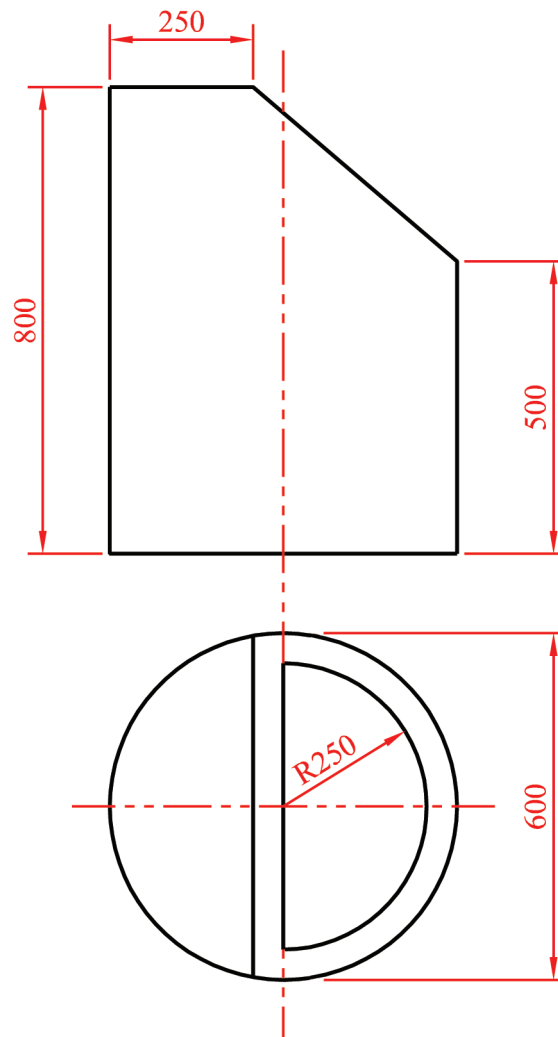
Scale 1:10

Fig. C-3

Dynamic Mechanisms

C-4. (a) A photograph of a ladder is shown.

Fig. C-4(a) shows a line diagram of a ladder lying against the side of a house. A tin of paint hangs off the ladder at a point P. The ladder slips causing it to slide horizontally along the ground and vertically along the wall.

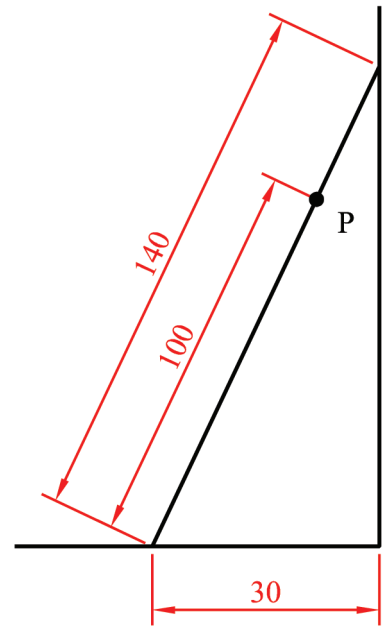Plot the locus of point P as the ladder slides to the ground.

Scale 1:1

Fig. C-4(a)

(b) The 3D graphic on the right shows a penny-farthing bicycle.

Fig. C-4(b) shows a line diagram of the two wheels.

Plot the locus of point P as the large wheel rolls clockwise through half of one revolution. Show the location of the small wheel when this movement has been completed.
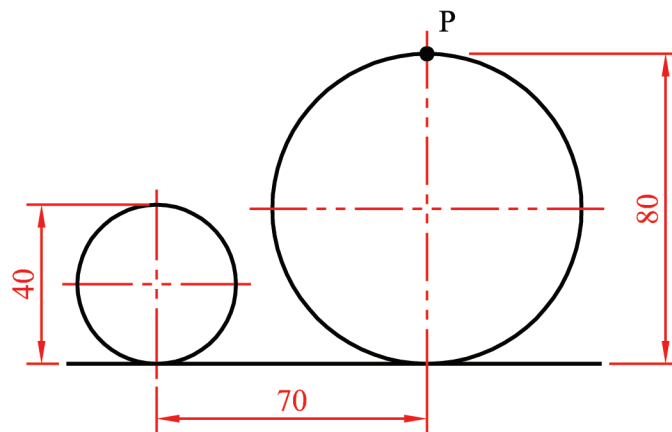
Scale 1:1

Fig. C-4(b)

Assemblies

C-5. Details of a desk tidy are given in Fig. C-5 with the parts list tabulated on the right.

Draw a plan and elevation of the assembled desk tidy and project an end view.

Note: The curves in 2 and 3 are parabolic. The wall thickness in 4, 5 and 6 is 4mm.

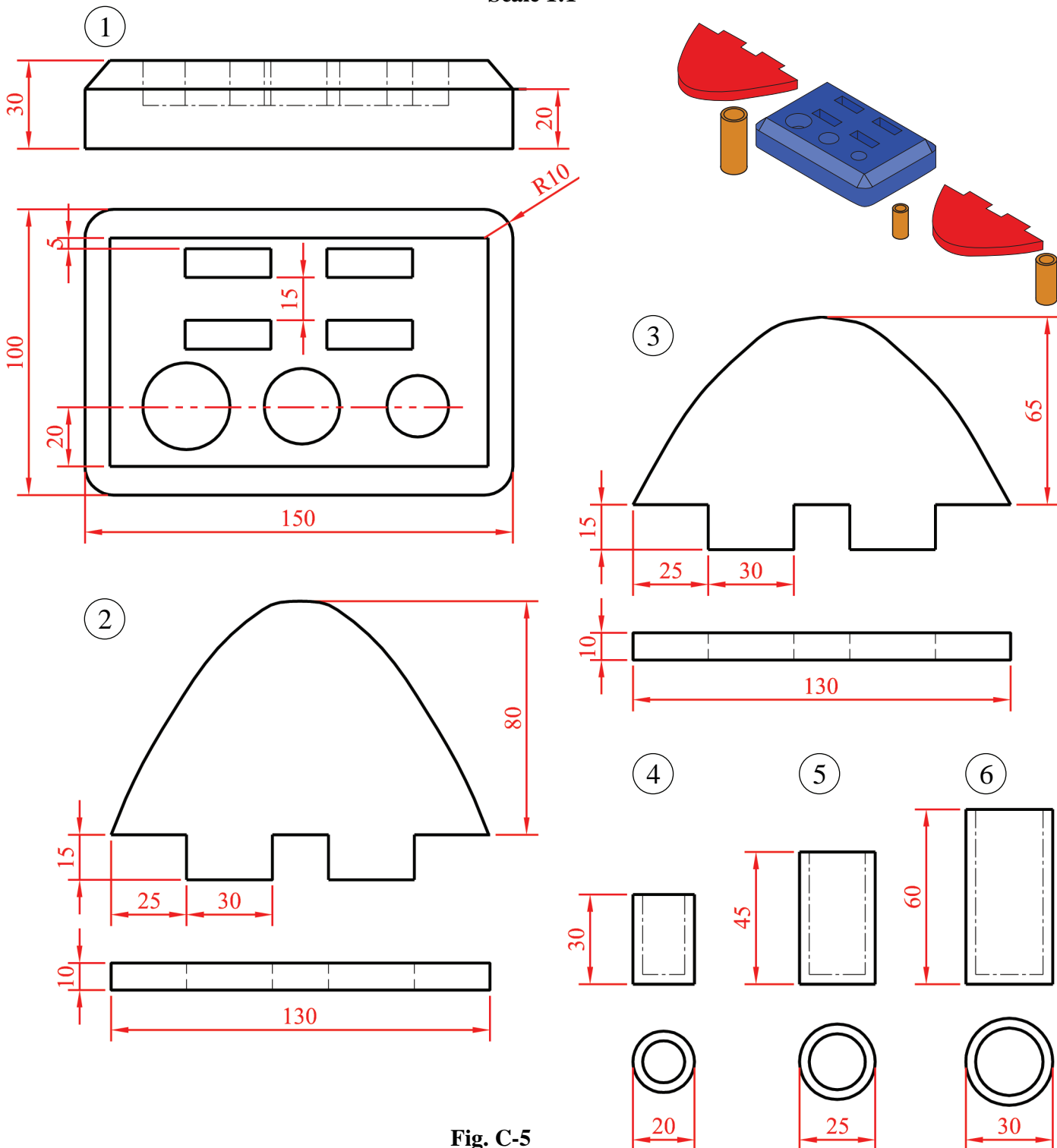| PART	NAME	QTY.
1	Base	1
2	Large Divider	1
3	Small Divider	1
4	Pen Holder	1
5	Paper Clip Holder	1
6	Pen Holder	1

Scale 1:1

Fig. C-5

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