Pre-Junior Certificate Examination, 2014

Technical Graphics
Higher Level
Section B
(280 marks)

Time : 3 Hours

Instructions

(a)   Answer **any four** questions.

(b)   All questions in this section carry equal marks.

(c)   The number of the question must be distinctly marked by the side of each answer.

(d)   Work on **one side** of the paper only.

(e)   Write your name, your school's name and your teacher's name
        on each sheet of paper used.

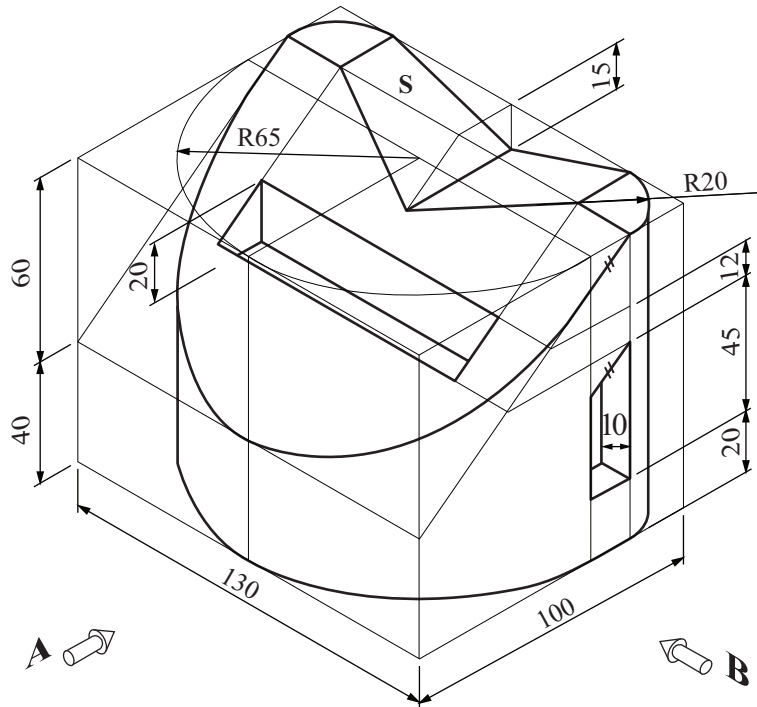**SECTION B.** Answer any **four** questions. All questions carry equal marks.

1. A pictorial view of a model for a docking station is shown.

(a) Draw an elevation in the direction of arrow **A**.

(b) Project a plan from the elevation.

(c) Project an end view in the direction of arrow **B**.

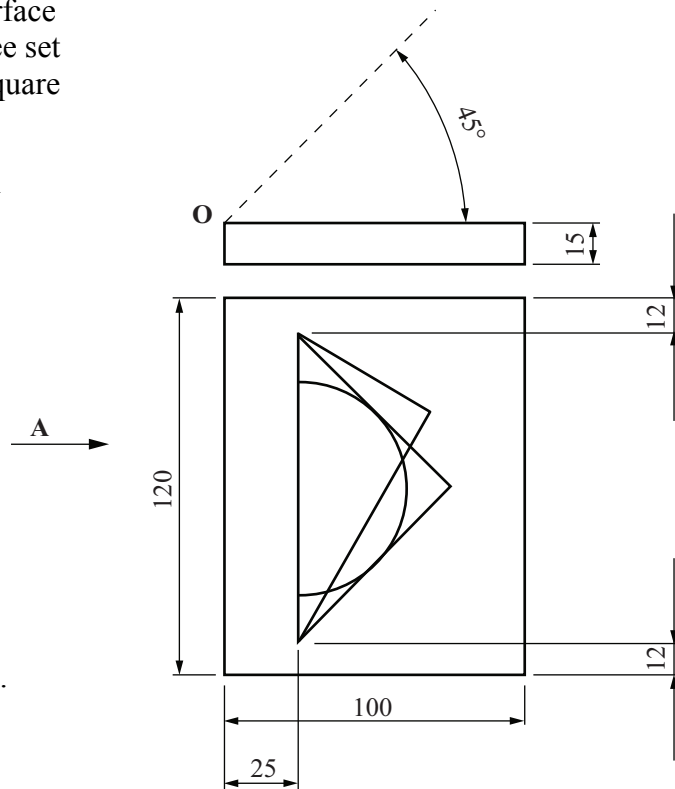**(d)** Determine the true shape of surface **S**.

2. The elevation and plan of a Technical Graphics kit storage box are shown.

The design on the top surface is based on a 60/30 degree set square, a 45 degree set square and a protractor.

(a) Draw the given elevation and plan.

The lid of the box is rotated through 45° about the point **O** as shown by the broken line in elevation.

(b) Project an end view of the box in the direction of the arrow **A** to show the lid in the rotated position.
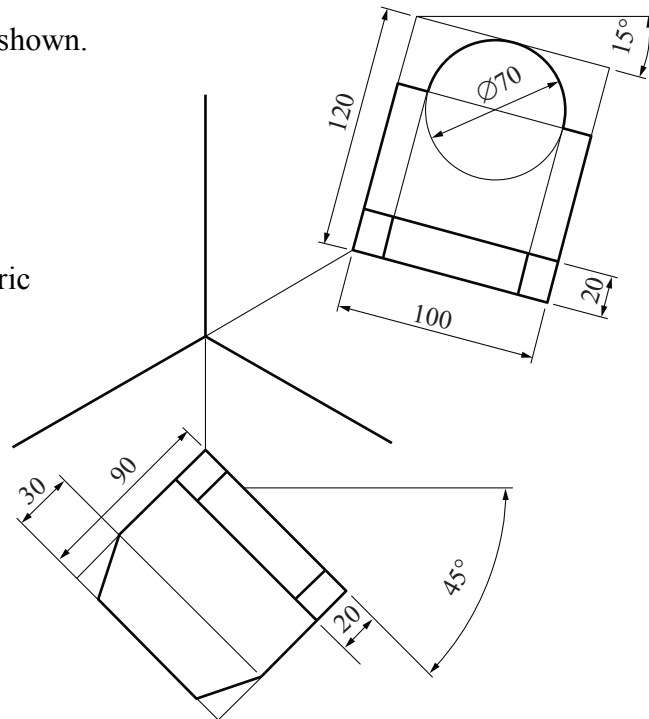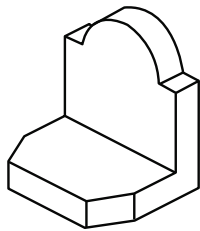
3. The axonometric axes required for the isometric projection of a bookend are shown. The elevation, plan and a 3D graphic of the bookend are also shown.

(a)

(i) Draw the axonometric axes as shown.

(ii) Draw the given elevation inclined at 15° as shown.

(iii) Draw the given plan inclined at 45° as shown.

(iv) Draw the completed axonometric projection of the bookend.
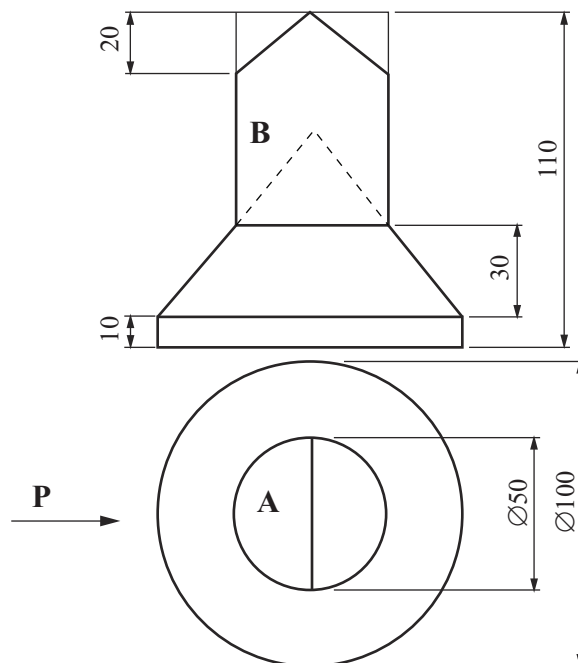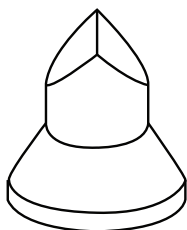
OR

(b) Draw an isometric projection of the bookend using the isometric scale method.

4. The elevation and plan of a design for a chess piece are shown. A 3D graphic of the chess piece is also shown. It consists of two cylinders and a cone. Cylinder B and the cone have been truncated as shown.

(a) Draw the given elevation and plan as shown.

(b) Project an end view in the direction of the arrow P.

(c) Draw the true shape of the cut surface **A**.

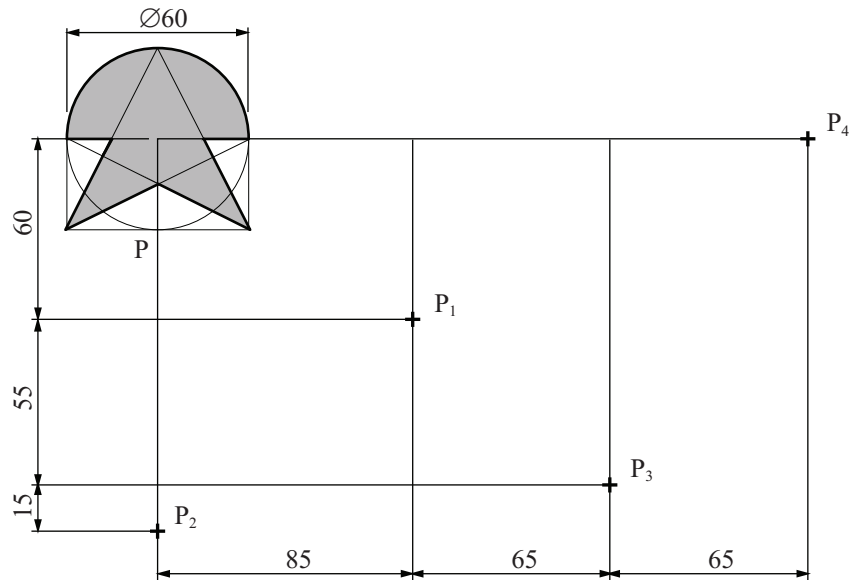**(d)** Draw the development of the cylindrical surface **B**.

5. The figure shows the logo for a sports club.
The logo is subject to transformations in the following order:

- Axial Symmetry
- Translation
- Central Symmetry
- Rotation anti-clockwise through 120°.

P_1, P_2, P_3 and P_4 show the positions of point **P** under each of these transformations.

(a) Draw the given figure.

(b) Determine the image of the figure under **each** of these transformations.

⌀60

60

55

15

P

P₄

P₁

P₃

P₂

85

65

65

6. The figure shows a design for a security firm logo.

The curve **ABCD** is an ellipse.

The curves **XWY**, **XTY** and **SVU** are identical to a portion of the same ellipse.

The curve **STU** is a parabola with the vertex at **T**.

The lines **PQ** and **QR** are tangents to the ellipse.

Draw the given design showing clearly all constructions.

Q

R

B

P

W

A

X

Y

C

20

80

T

D

V

S

U

100

130