Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Certificate Examination, 2016

Technical Graphics
Ordinary Level
Section B
(280 marks)

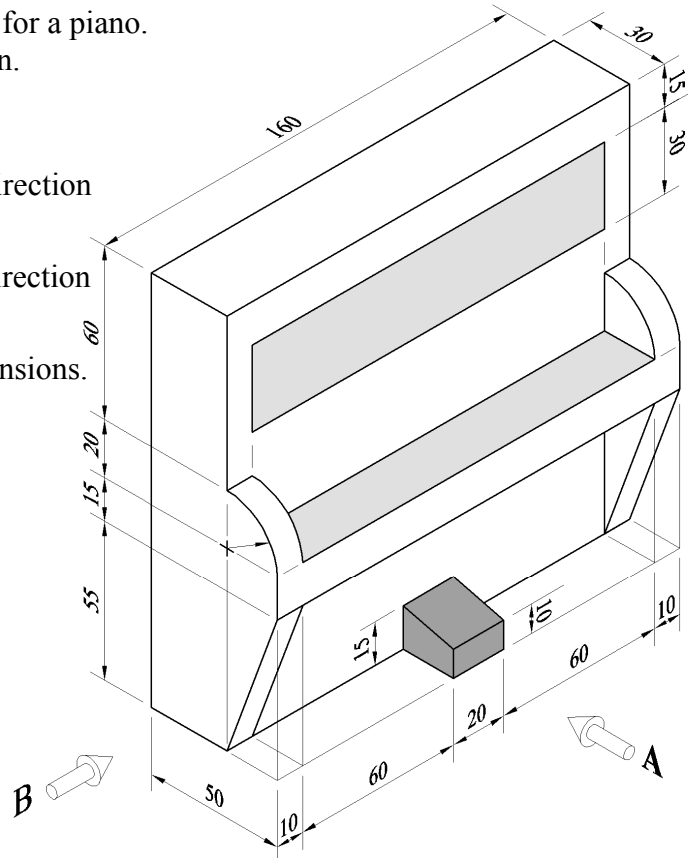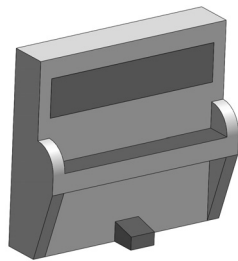*Monday, 20 June*
Morning 9:30 - 12:00

Instructions

(a)   Answer **any four** questions. All questions carry equal marks.

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

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

(d)   Write your examination number on each sheet of paper used.

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

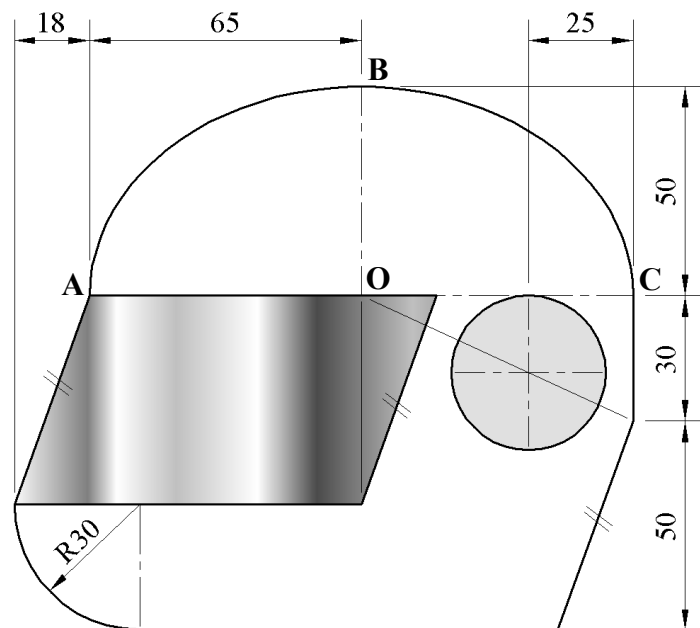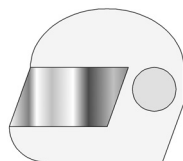**1.** The figure shows a design for a piano. A 3D graphic is also shown.

Draw:

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

(b) An end view in the direction of arrow **B**.

(c) Insert **any four** dimensions.

160
30
15
30
60
20
15
55
15
10
60
10
20
60
50
10

B
A

2. The graphics show the outline of a motorsport helmet.
The design is based on circles, parallel lines and a semi-ellipse as shown.

The curve **ABC** is a semi-ellipse. **AC** is the **major axis** of the ellipse and is 130 mm long. **OB** is half the **minor axis** and is 50 mm long.
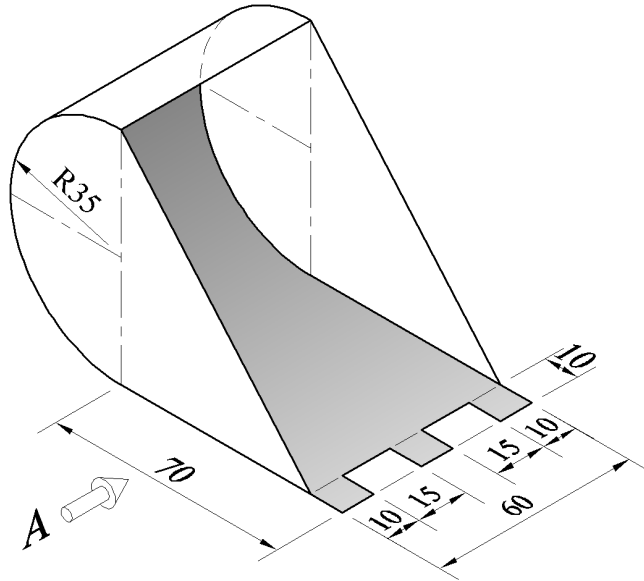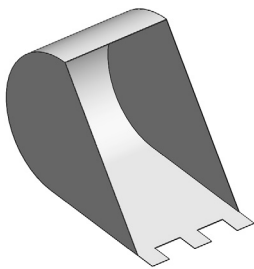
Draw the given ellipse and complete the design showing clearly all constructions.
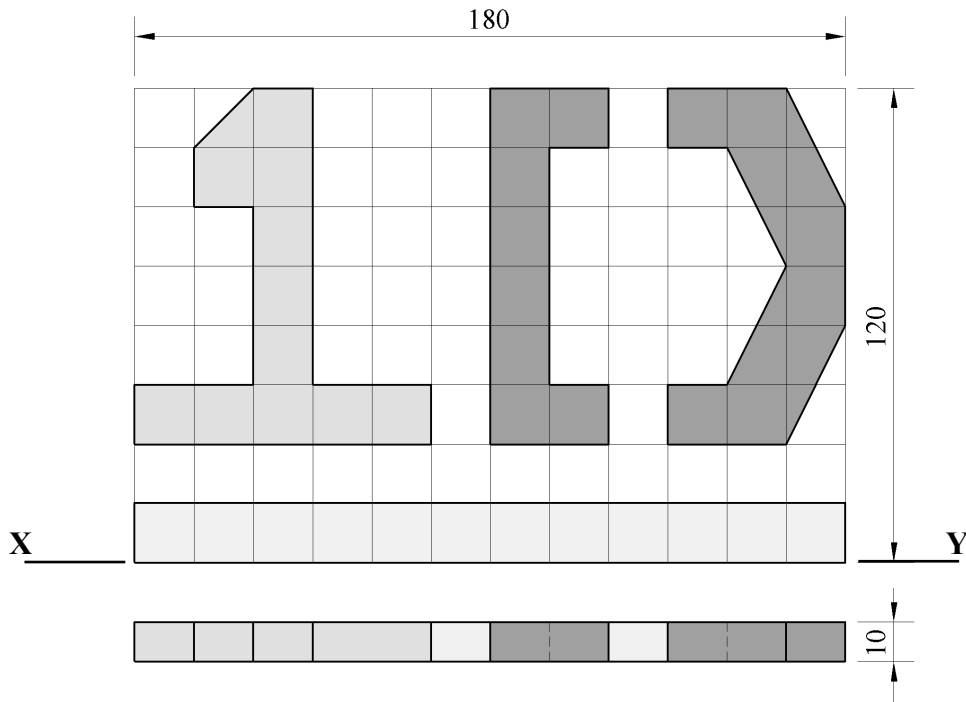
18
65
25
B
50
A
O
C
30
R30
50

3. The figure shows the bucket of a toy mechanical digger.
A 3D graphic is also shown.

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

(b) A plan projected from the elevation.

(c) The complete **surface development** of the bucket.

R35

10

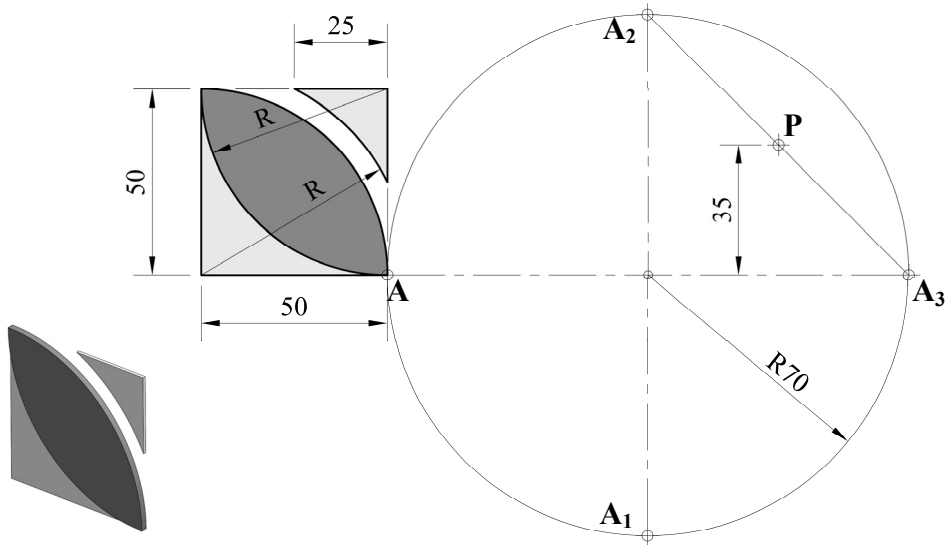15 10

70

10 15

60

A

4.

180

120

10

X _____

Y

The figure shows the elevation and plan of a band logo.

The grid in elevation is made up of 15 mm squares and the thickness in plan is 10 mm.

Draw **one** of the following views: **(a)**   An **isometric** view of the initials.

or

(b)   An **oblique** view of the initials.

Note: The solution must be presented on standard drawing paper.

5. The graphics show the design of a logo for a rugby tournament.

(a) Draw the given logo and then locate the points **A**, **A₁**, **A₂**, **A₃** and **P** as shown.

(b) Find the image of the given logo under the following transformations:

(i) From point A to A₁ by a **translation**;
(ii) From point A₁ to A₂ by an **axial symmetry** in the line **A-A₃**;
(iii) From point A₂ to A₃ by a **central symmetry** in the point **P**.

Note: *All geometric constructions must be clearly shown on your drawing sheet.*

6. The figure shows an outline design for a ladies shoe.

Draw the design showing clearly how to find the centres of the circles shown.

Show all construction lines, tangents and points of contact.