



Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Certificate Examination, 2015

Technical Graphics

Higher Level

Section B

(280 marks)

Monday, 15 June

Morning, 9:30 - 12:30

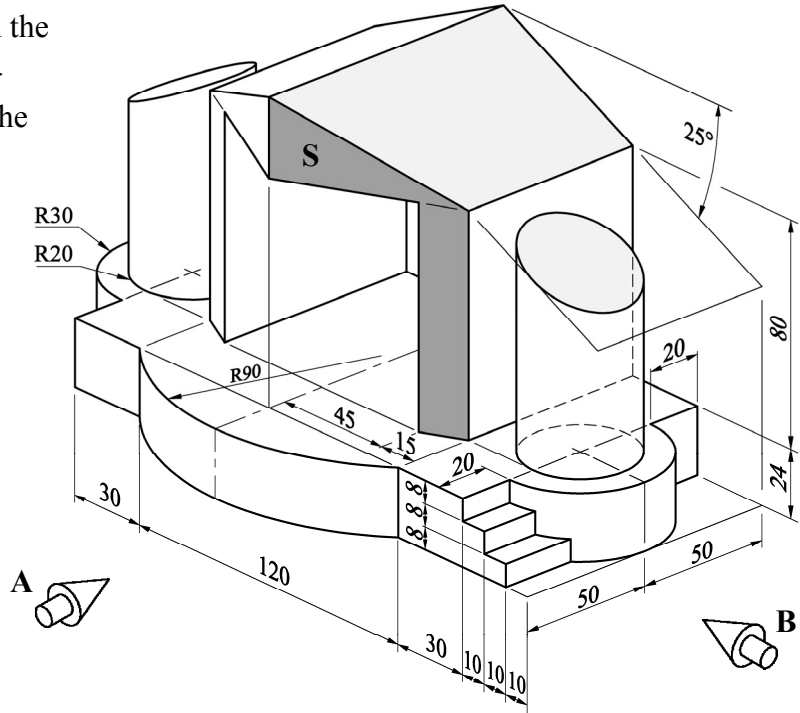
Instructions

- (a) Any four questions to be answered.*
- (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 examination number on each sheet of paper used.*

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

1. A pictorial view of a concert stage 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**.

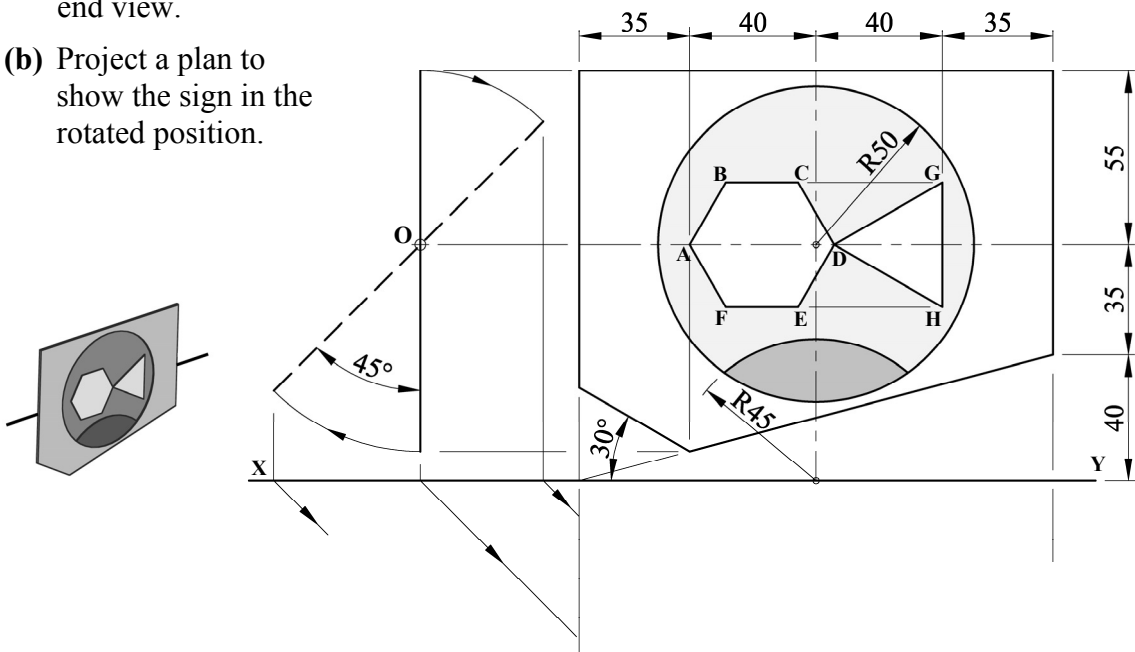


2. The elevation, end view and a 3D graphic of a sign for a fish-shop are shown. The sign is based on a regular hexagon **ABCDEF** and an equilateral triangle **DGH**.

- (a) Draw the given elevation and end view.

The sign is rotated through 45° about the point **O** as shown by the broken line in end view.

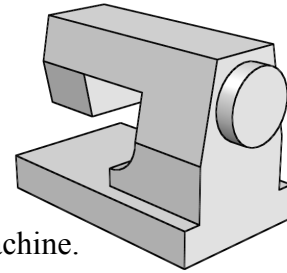
- (b) Project a plan to show the sign in the rotated position.



3. The axonometric axes required for the isometric projection of a sewing machine are shown. The elevation, end view and a 3D graphic of the sewing machine are also shown.

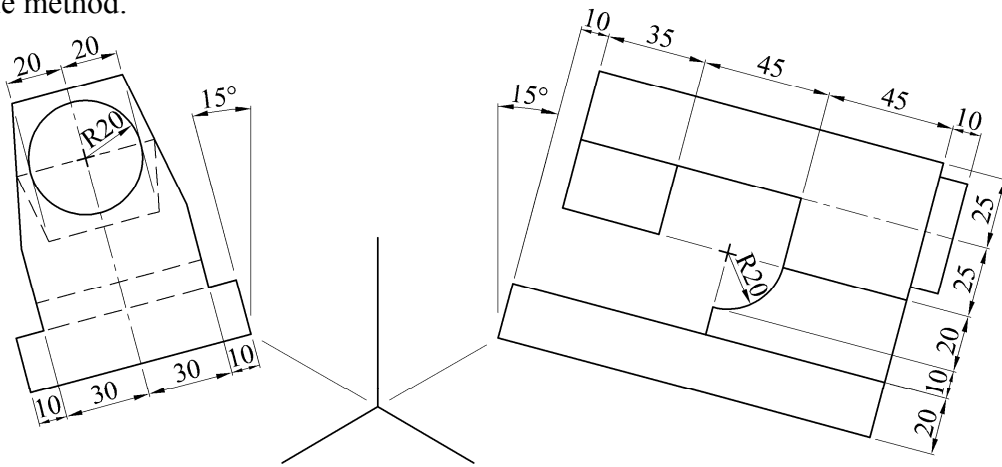
(a)

- (i) Draw the axonometric axes as shown.
- (ii) Draw the given elevation inclined at 15° as shown.
- (iii) Draw the given end view inclined at 15° as shown.
- (iv) Draw the completed axonometric projection of the sewing machine.



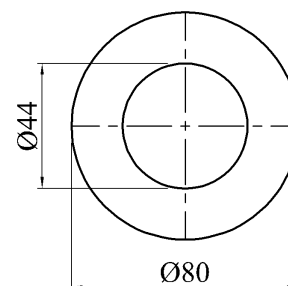
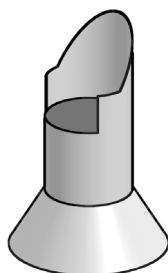
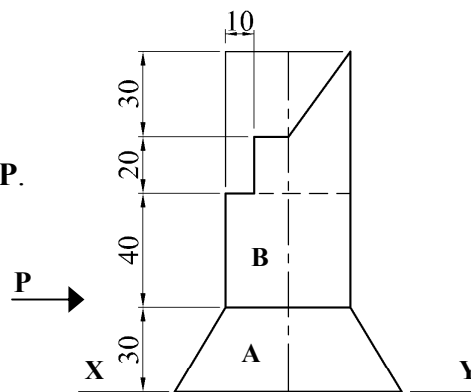
OR

(b) Draw the isometric projection of the sewing machine using the isometric scale method.



4. The elevation and plan of the design for a child's high chair are shown. The high chair consists of a truncated cone A and a cylinder B, which is truncated as shown. Also shown is a 3D graphic of the high chair.

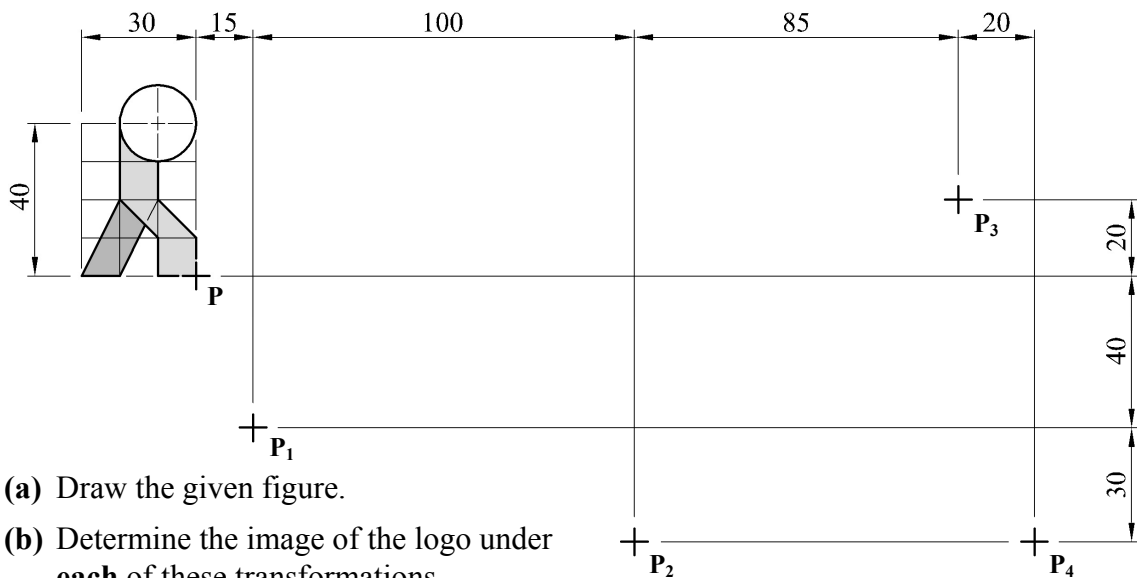
- (a) Draw the elevation and plan as shown.
- (b) Project an end view in the direction of arrow P.
- (c) Draw the development of the conical surface A.
- (d) Draw the development of the cylindrical surface B.



5. The logo for a fitness club is based on a square grid, as shown. The logo is subject to transformations in the following order:

- Axial Symmetry
- Central Symmetry
- Translation
- Rotation 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 logo under each of these transformations.

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

6. The figure shows a design for a scooter.

The curve ABC is a portion of an ellipse with semi-minor axis CD . The figure shows the location of the axes and the focal points, F_1 and F_2 , of the elliptical curve. The line BE is a normal to the ellipse.

The line CG is a tangent to the circle from C .

The curve HJK is a parabola with vertex at J .

Draw the given design showing clearly all constructions.

