

JUNIOR LYCEUM

ANNUAL EXAMINATIONS 2010

DIRECTORATE FOR QUALITY AND STANDARDS IN EDUCATION
Educational Assessment Unit

FORM 4 (4th year) GRAPHICAL COMMUNICATION Time: 2 hours

Instructions

- Write your name and class on all sheets.
- Attempt ALL questions.
- All answers are to be drawn accurately, with instruments, unless otherwise stated.
- All construction lines MUST be left on each solution to show the method employed.
- Drawing aids may be used.

Information

- All dimensions are in millimetres.
- Estimate any missing dimensions not given.
- Marks will be awarded for accuracy, clarity and appropriateness of construction.

NAME _____ CLASS _____

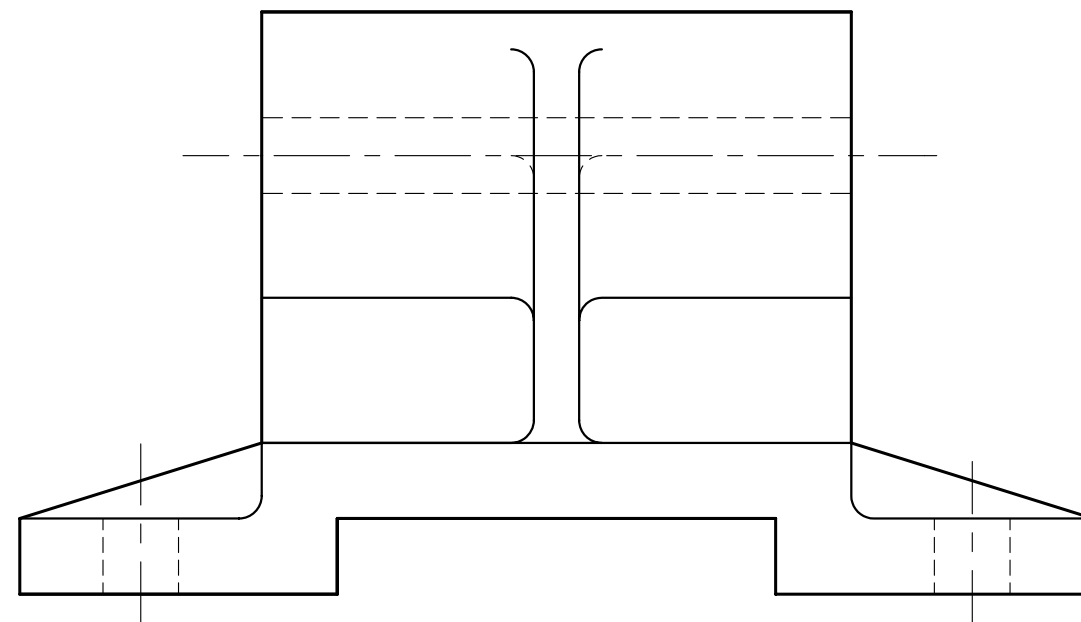
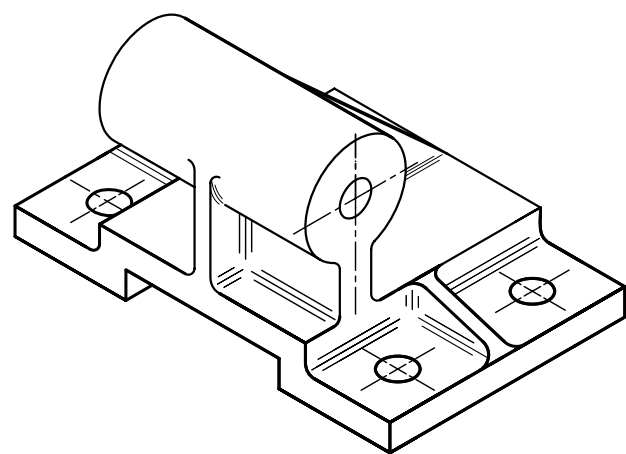
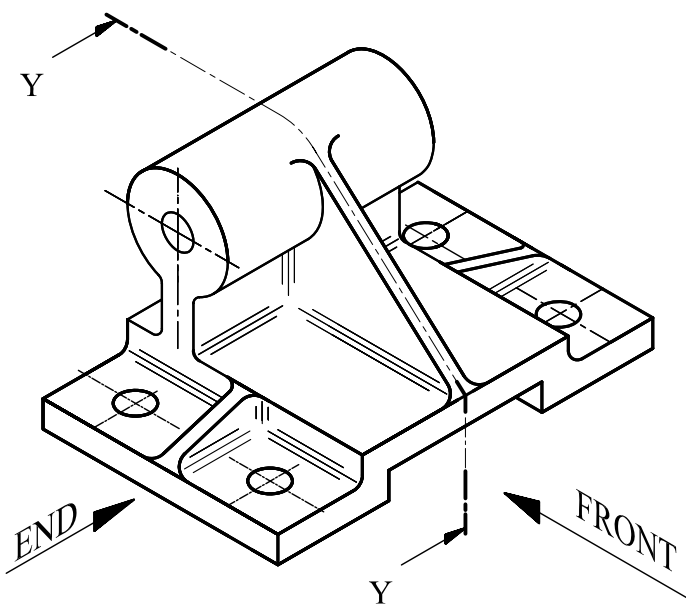
Question	1	2	3	4	5	6	Total
Max. mark	25	15	15	15	15	15	100

Question 1. Two pictorial views and two orthographic elevations of a CAST STEEL BRACKET are given.

In the space provided:

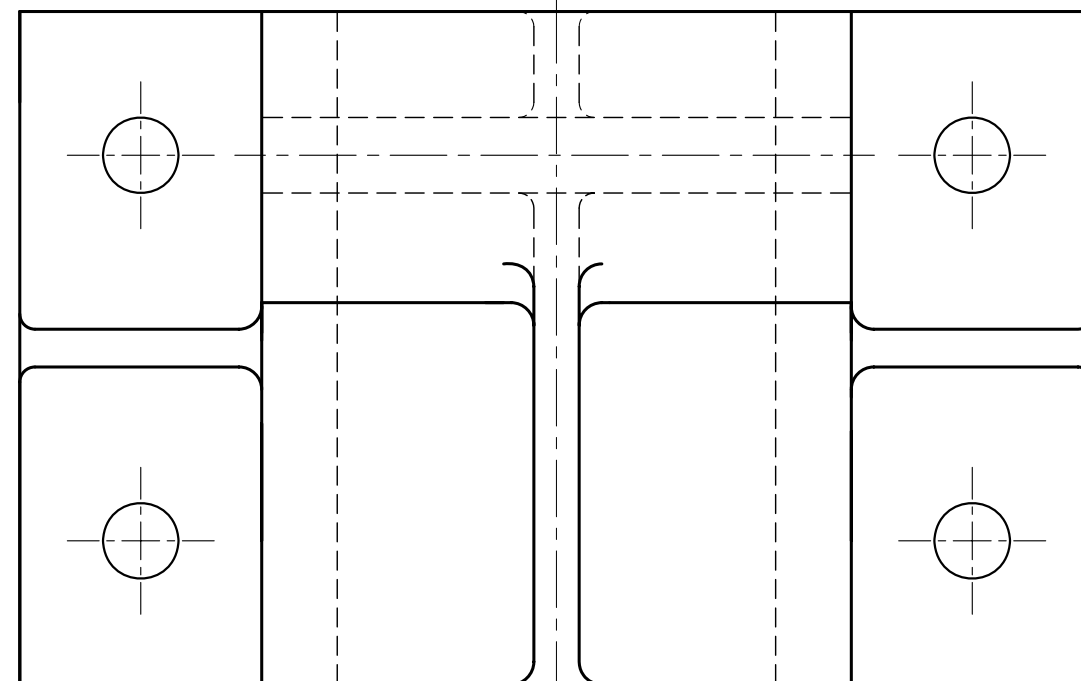
- a) draw a sectional end elevation Y-Y
- b) draw the symbol of the projection used

25 marks



FRONT ELEVATION

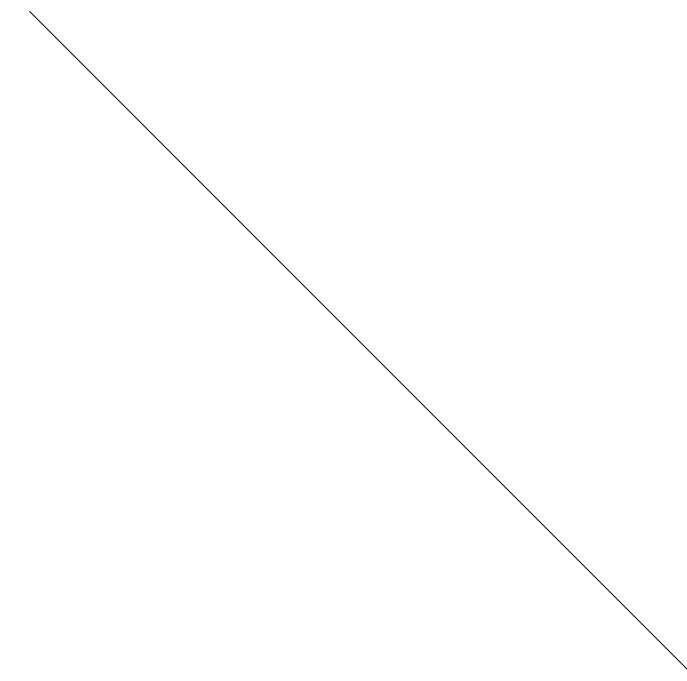
Y →



Y →

PLAN

SECTIONAL END ELEV Y-Y



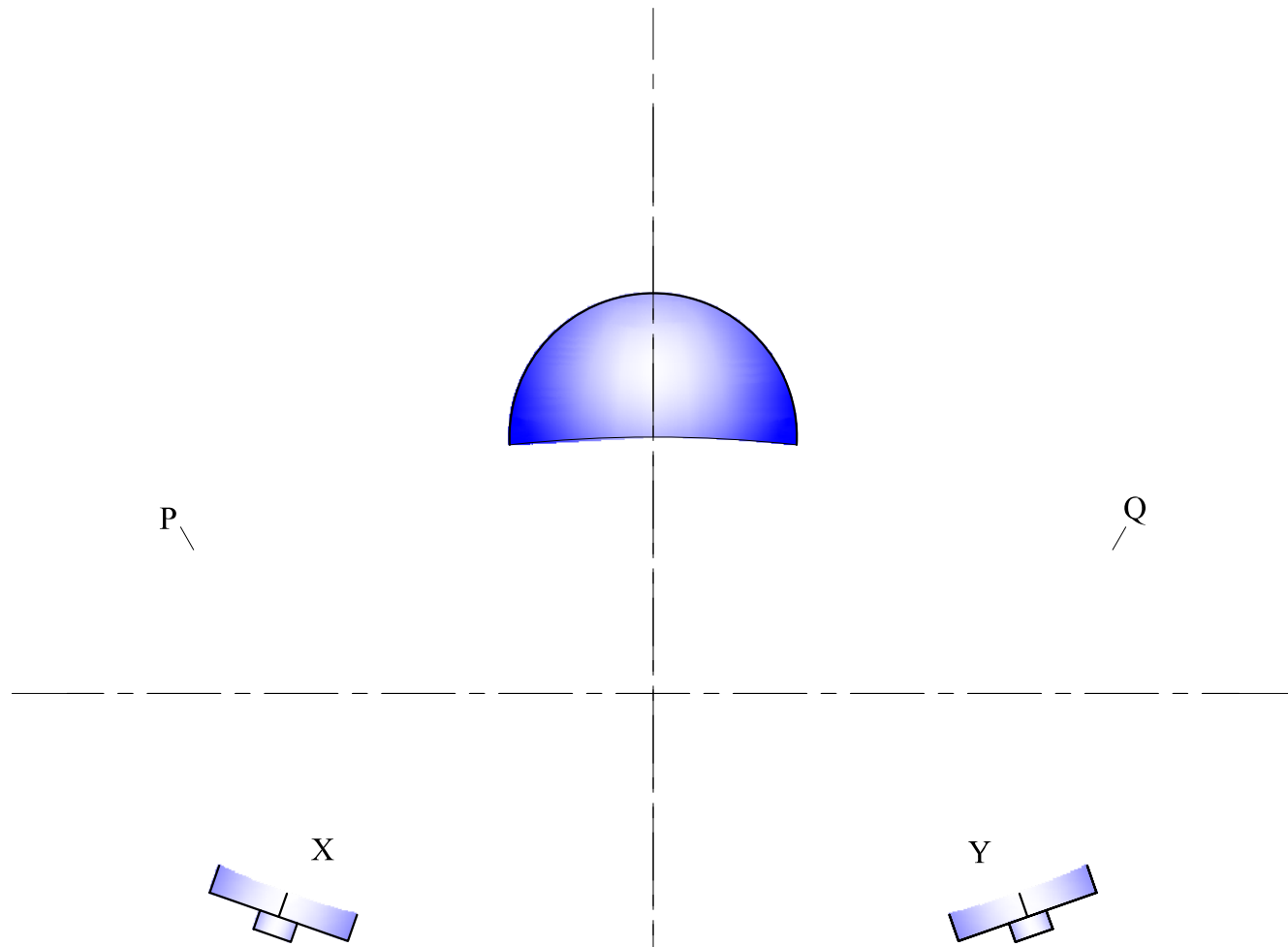
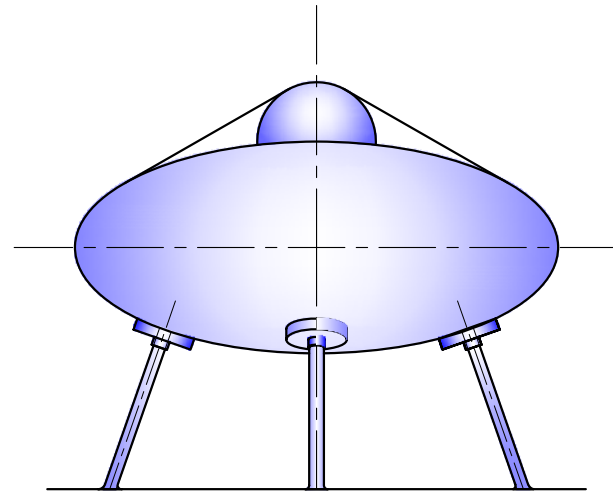
Projection symbol

Question 2. The toy spacecraft shown consists of a spheroid which has an elliptical cross section. The landing gear consists of four supports which are normals to the ellipse.

On the given start lines:

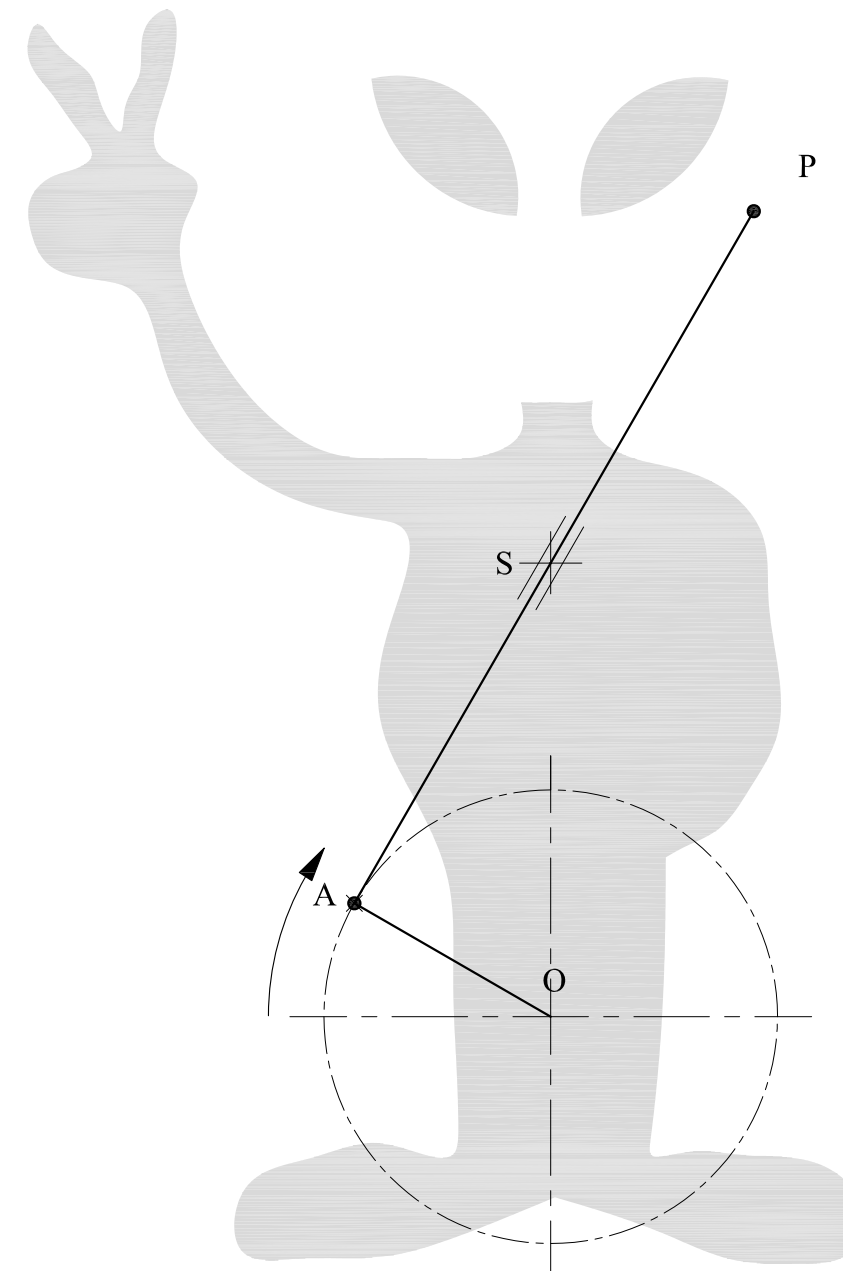
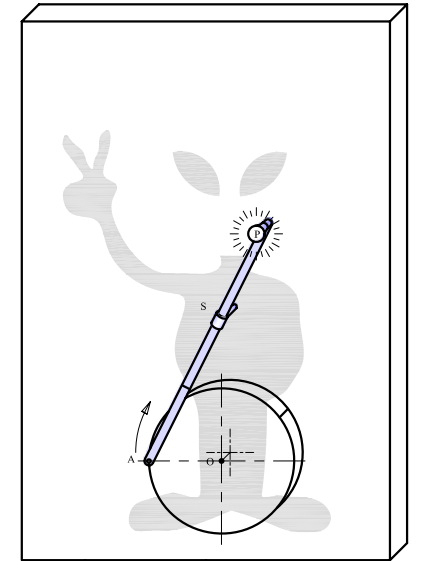
- construct the ellipse having a major axis of 160mm and a minor axis of 70mm,
- construct two normals from points X and Y on the ellipse to represent the centre lines of two supports.
- construct two tangents at points P and Q to form part of the cabin.

15 marks



Question 3. The figure on the right shows a simple mechanism built by students to participate in the school annual exhibition. The mechanism, which is mounted on a board, consists of a disc which rotates about centre O. Link AP, pin jointed to the disc at A, slides through the swivel S. A light bulb is attached at point P. Plot the locus of point P for one revolution of the disc.

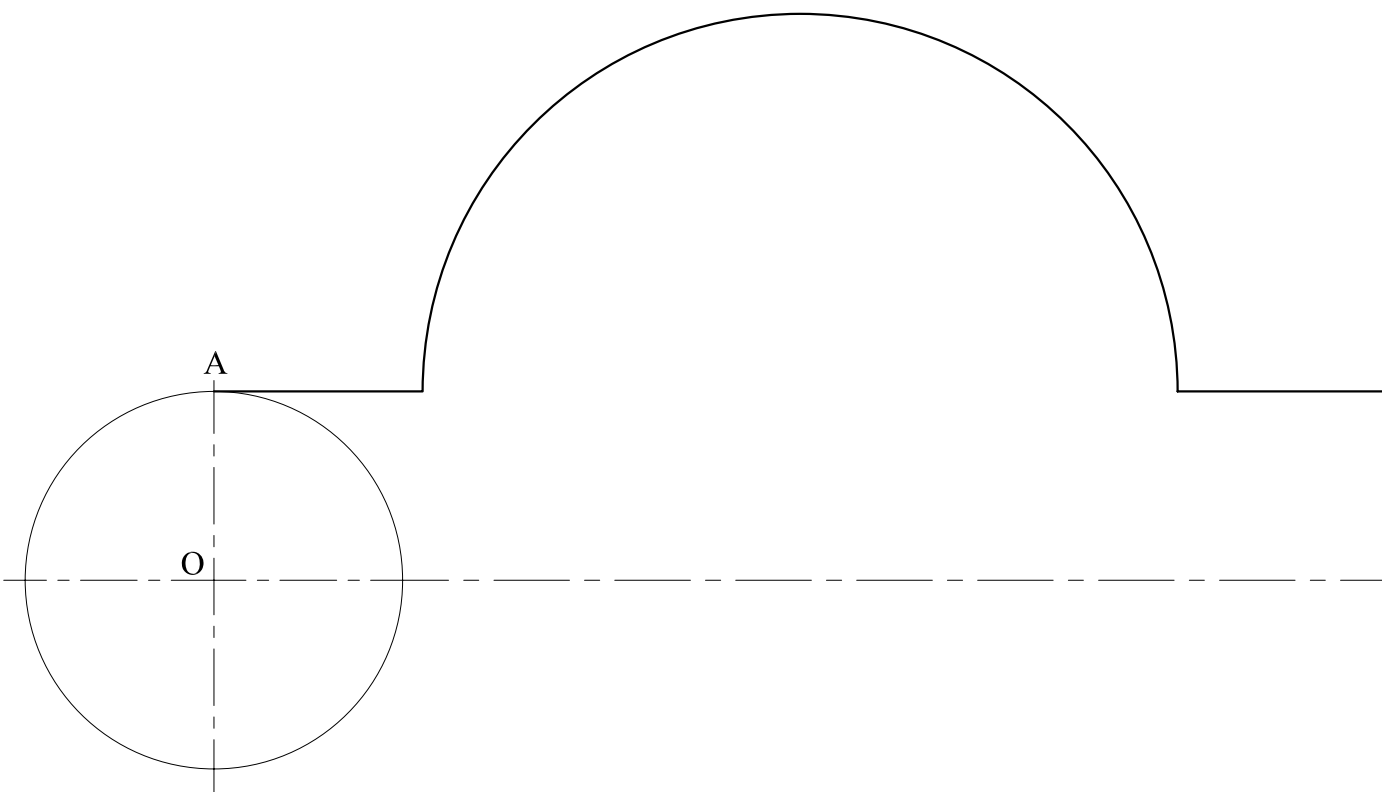
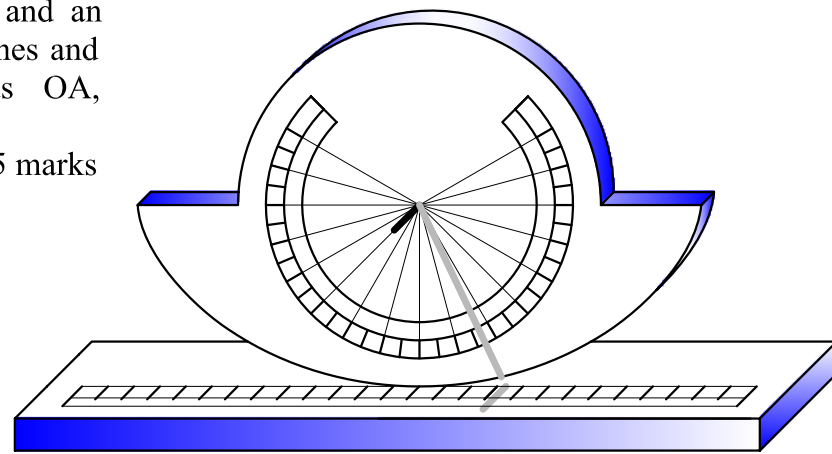
15 marks



Sheet 2 of 4

Question 4. The figure shows a model of a CYCLOID POLAR SUNDIAL, the profile of which is composed of a semi-circle and an inverted cycloid. On the given start lines and using the generating circle radius OA, construct the inverted cycloid.

15 marks

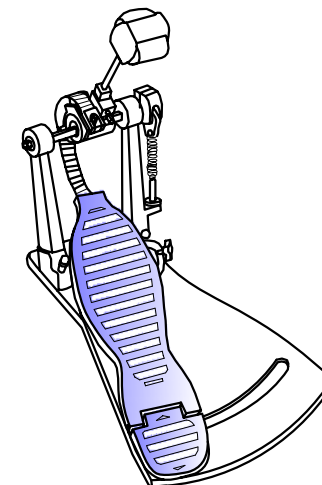
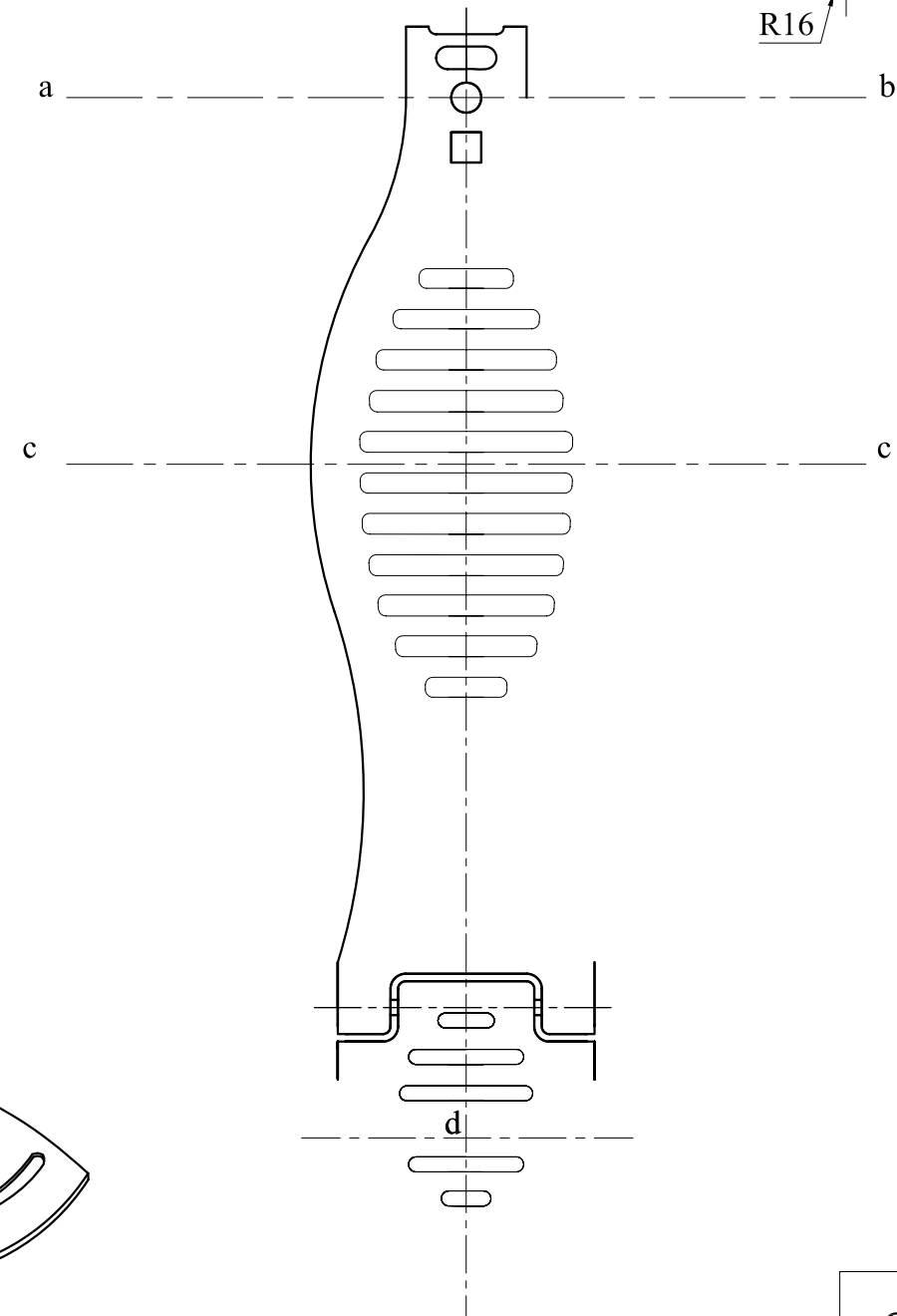
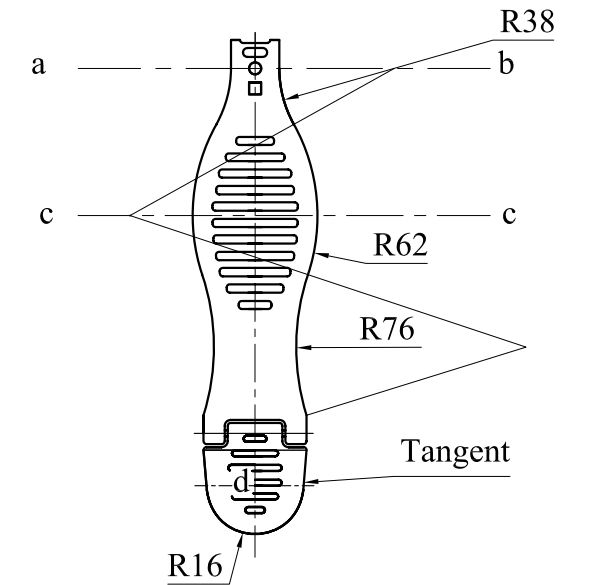


Question 5. A pictorial sketch and a plan view of a single bass drum PEDAL are shown. On the given start lines below, draw the remaining part of the profile and show clearly the constructions used to locate the centres and tangential points.

Notes:

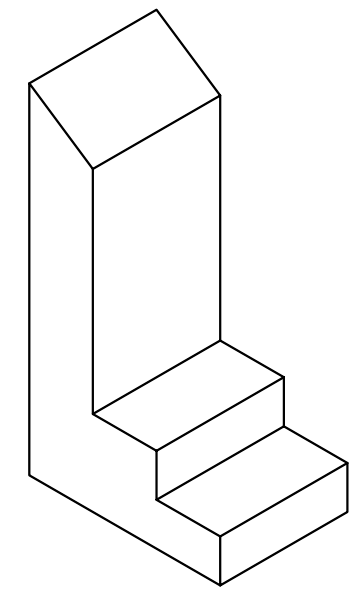
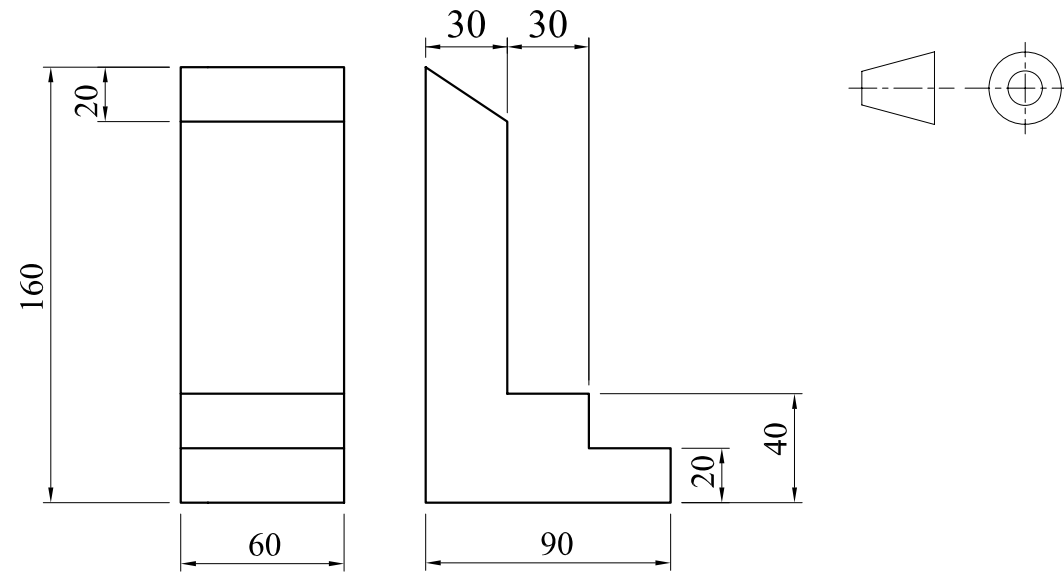
- The centre of arc R38 lies on centre line *ab*.
- The centre of arc R62 lies on centre line *cc*.
- Point *d* is the centre of R16 arc.
- Show construction used to locate tangential point to arc R16.

15 marks



Question 6. An isometric view and an orthographic projection of a Podium (elevated platform used for public speaking) are given. Using the given measurements and start lines, draw a two point estimated perspective view of the podium.

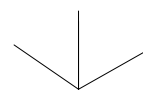
Note: The orientation is to be similar to that in the isometric view.
15 marks



VP 1



VP 2



Sheet 4 of 4