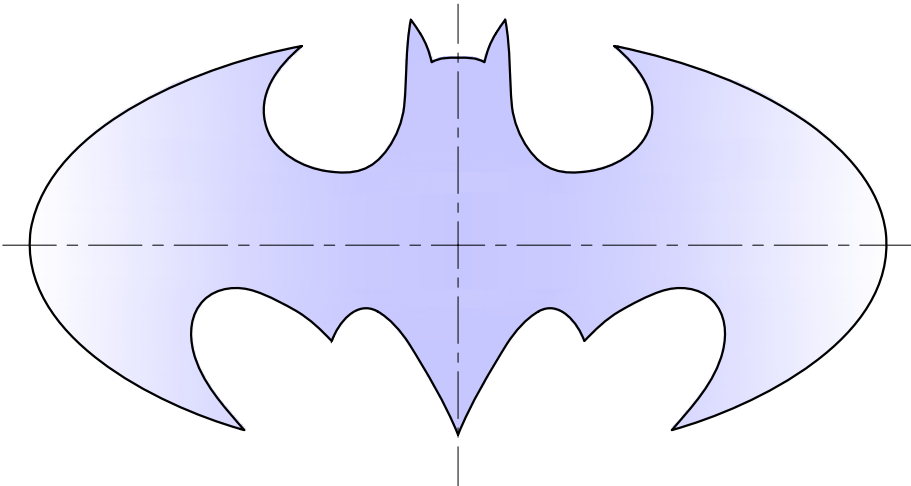
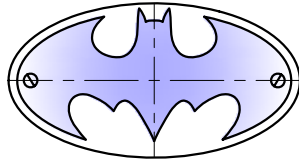


Question 1. The metallic Batman logo shown on the right is enclosed in an elliptical frame and has two fixing holes. In the space provided below, construct the elliptical frame having a major axis of 170 mm and a minor axis of 90 mm. The centres of the screwing holes are located on the focal points and have a radius of 4 mm.

10 marks

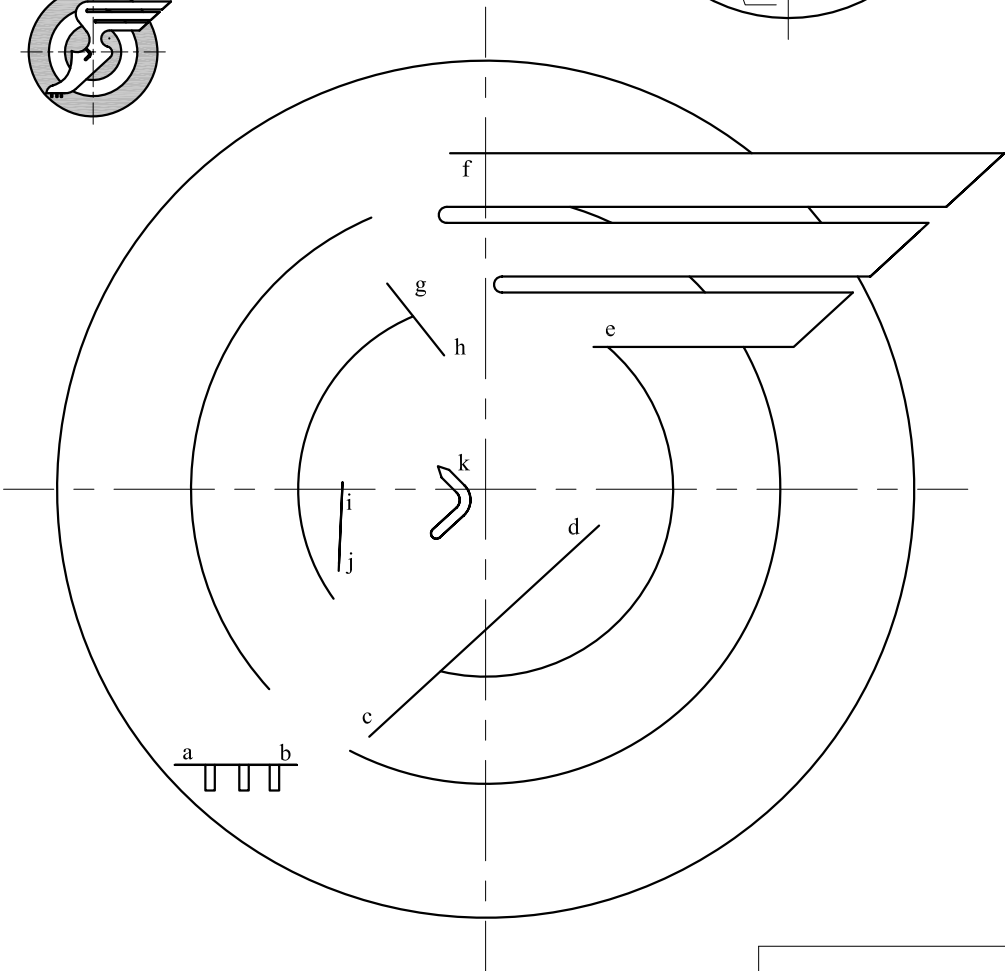
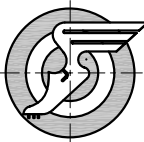
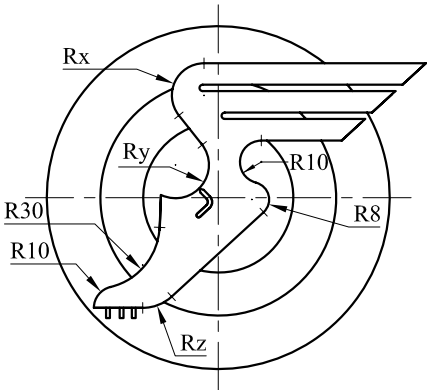


Question 2. The Athletics pictogram used for the 1936 Olympic Games is shown. Using the given dimensions, and on the given start lines, complete the pictogram showing clearly the constructions used to locate the necessary centres and tangential points.

Notes:









- i) *a, b, c, d, e, f, g, h, i and j are tangential points*
- ii) *centres of Rx and Rz lie at the intersection of normals*
- iii) *centre of Ry is to be located by the 3-point method using points i, k and h.*

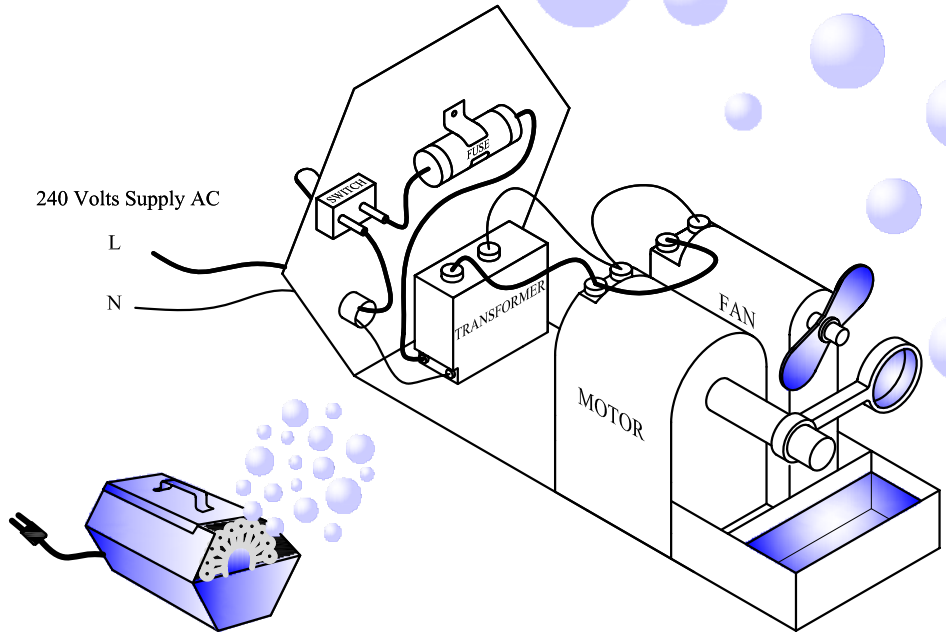
14 marks



Question 3. Two pictorial views of an electrically operated soap bubble machine are given. The components and the wiring sequence of the electrical circuit are indicated in the larger view (with the lid removed). Using symbols from the given list, and in the space provided below, convert the pictorial drawing into a schematic electrical circuit diagram.

12 marks

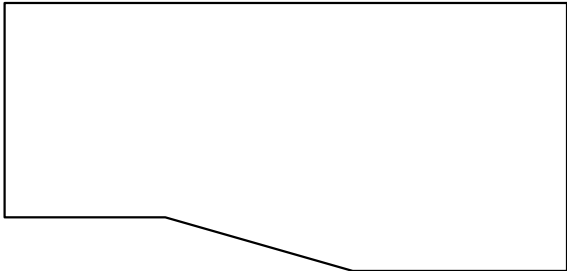
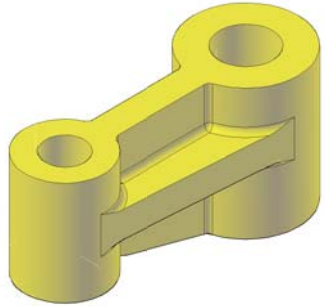
		 MOTOR	 FAN
			



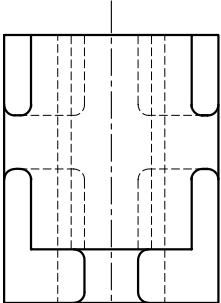
Question 4. A pictorial view, an incomplete front elevation, a plan and an end elevation of a connecting rod are given.

- complete the sectional front X-X.
- draw the symbol of the projection used.

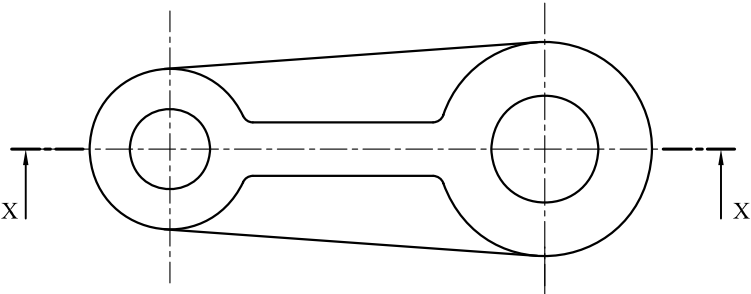
14 marks



SECTION X - X



END ELEVATION



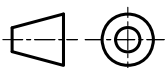
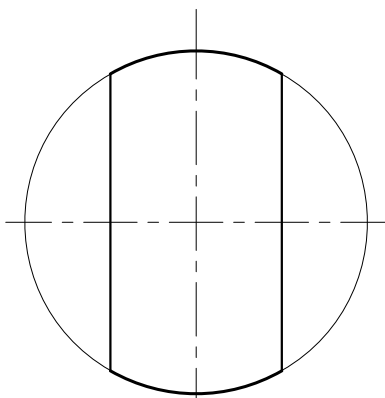
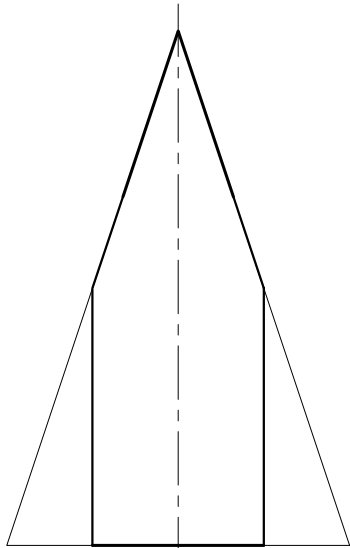
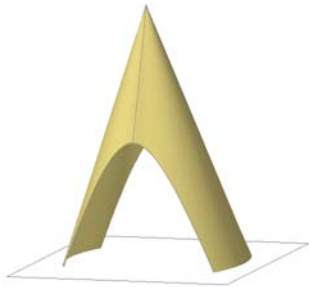
PLAN

Projection symbol

Sheet 2 of 4

Question 5. A pictorial and two orthographic views of a cut cone are given. In the space provided, construct an end elevation. State the name of the curve formed by the cut.

12 marks



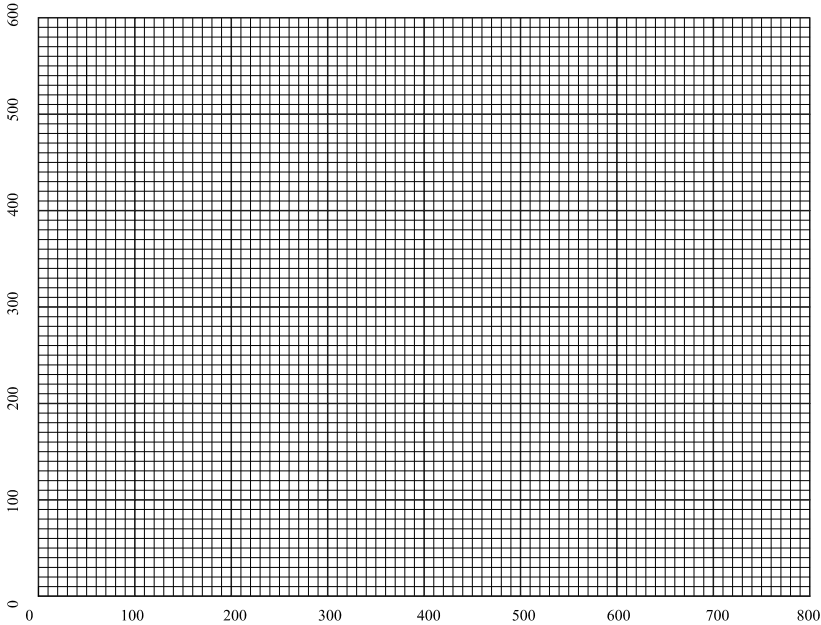
Name of curve.....

Question 6. The following computer programme is written for the use of a particular computer icon. The grid printed below represents an 800 x 600 graphical display. Use the grid to draw the image produced by this programme.

```
DATA: A = 50; B = 100; C = 200; D = 300; E = 400; F = 500; G = 550; H = 600; J = 700, K = 750
ACI 1: MOVE A,A; DRAW K,A; DRAW K,G; DRAW A,G; DRAW A,A;
ACI 7: MOVE B,B; DRAW J,B; DRAW J,F; DRAW B,F; DRAW B,B;
      MOVE B,B; DRAW D,D;
      MOVE J,B; DRAW F,D;
      MOVE B,F; DRAW E,C;
      MOVE J,F; DRAW E,C;
```

The computer responds to the following colour commands:  
 Colour                      ACI Colour Index (Number)  
 RED                              1  
 BLACK                            7

12 marks

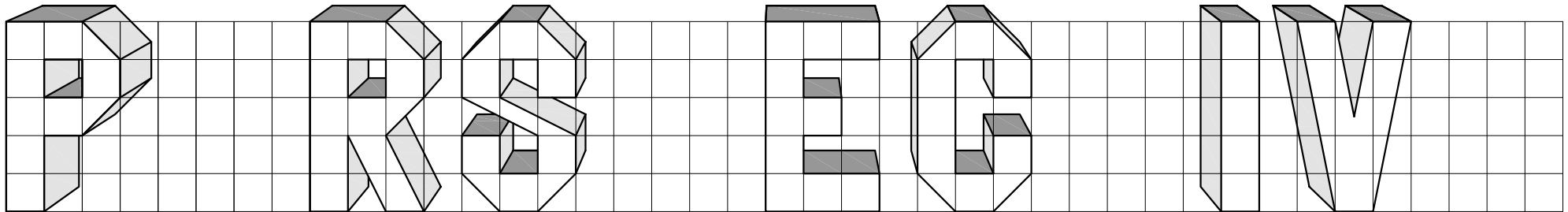


Question 7. An incomplete three dimensional representation of the word PERSPECTIVE is given below. Using the given font style, grid and vanishing point;

- complete the letters E, P, T and E.
  - render the letters to match the existing ones.
- Leave all construction lines visible.

12 marks

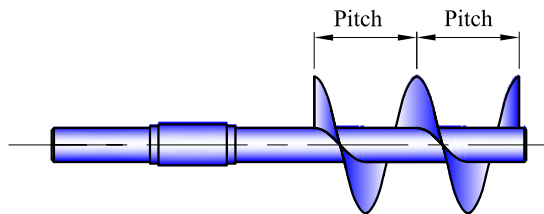
PERSPECTIVE



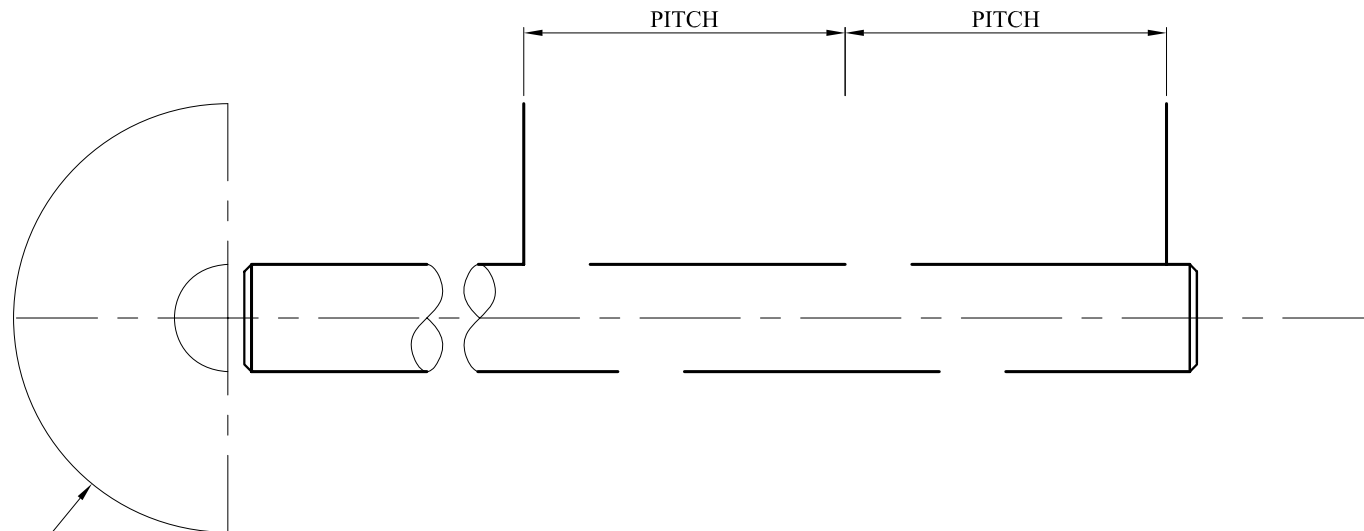
Question 8. The figure below shows a drawing of a concrete mixing tool which consists of two turns of a helical blade which turns around a shaft. The outside diameter of the blade and the pitch of the helix are given.

Using the given start lines, construct the two turns of the helical blade. Leave all construction lines visible.

14 marks



Outside Diameter of blade



Sheet 4 of 4