

JUNIOR LYCEUM ANNUAL EXAMINATIONS 2006

Educational Assessment Unit – Education Division

FORM 4 (4th year)

TECHNICAL DESIGN

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 _____

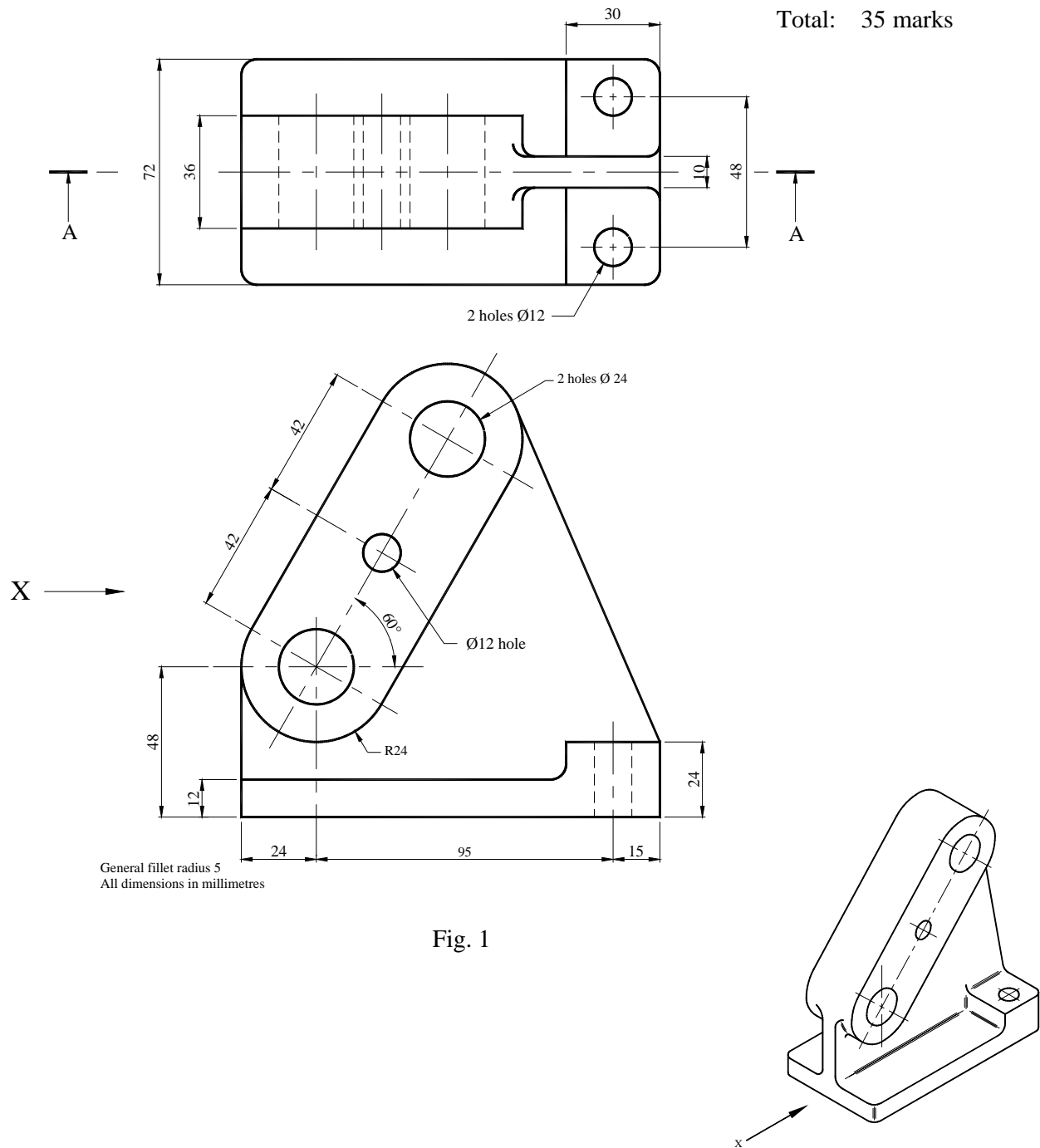
CLASS _____

Question	1	2	3	4	5
Max. mark	35	15	18	16	16
Mark					

1. Figure 1 below shows an elevation and plan of a **RETAINING BRACKET**.

- (a) Draw full size in **third angle projection** the following views:
- (i) a sectional front elevation on plane **A – A** passing through the centre of web. 18 marks
 - (ii) an end elevation in direction of arrow **X**. 12 marks
- (b) Add the following to your drawing:
- (i) the appropriate symbol to indicate the projection angle used.
 - (ii) the scale.
- No hidden detail is required. 5 marks

Total: 35 marks

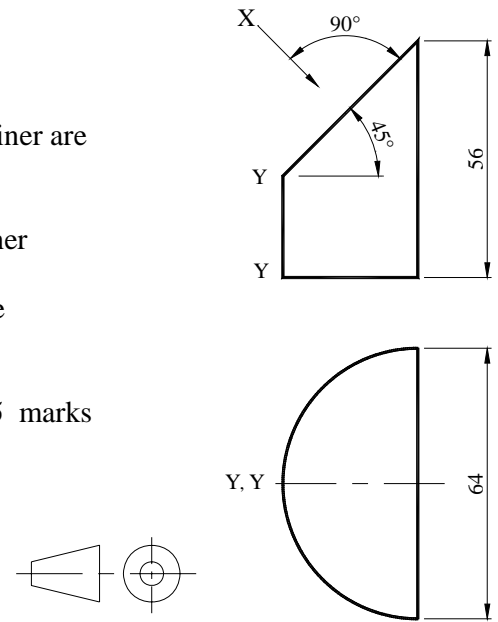


2. A front elevation and a plan view of a small container are given in figure 2.

- Draw **half** the surface development of the container assuming the joint line at **Y – Y**.
- Project a true view of the opening at the top of the container looking in the direction of the arrow X.
- All projection lines must be shown.

15 marks

Fig. 2



3. Draw the profile shown below, using geometrical methods to determine the centres of the arcs.

Indicate the exact points of tangency between blending arcs by drawing short lines across the profile at these points.

Construction lines for the centres of arcs and the points of tangency must be clearly shown.

A uniform thickness and darkness of outline is required throughout.

18 marks

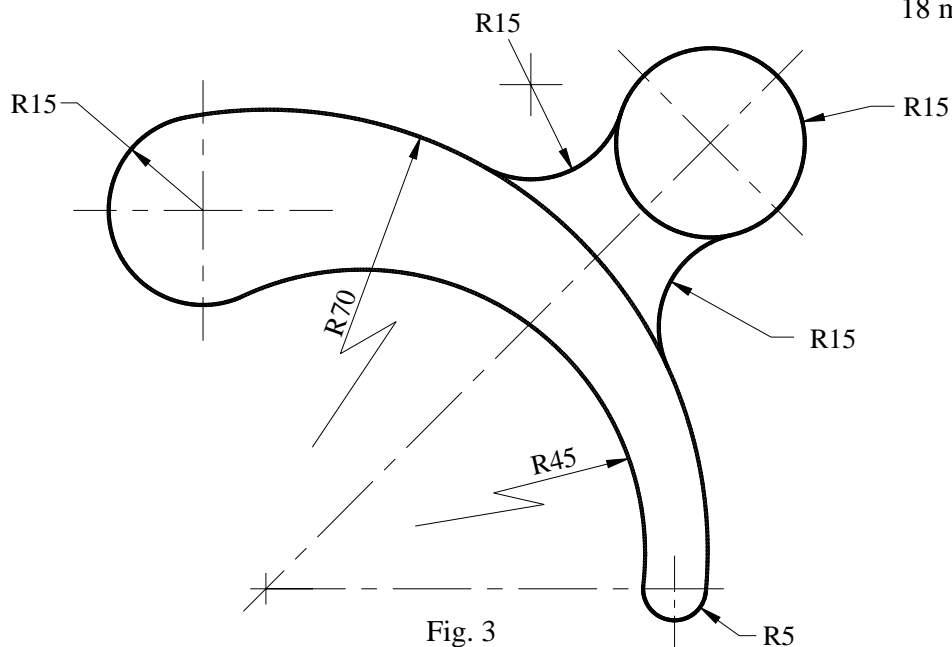


Fig. 3

4. The figure shows two views in first angle projection of an electrical contact. Draw a **30° / 60° Planometric** view of the component positioning corner **A** to appear in the foreground.

16 marks

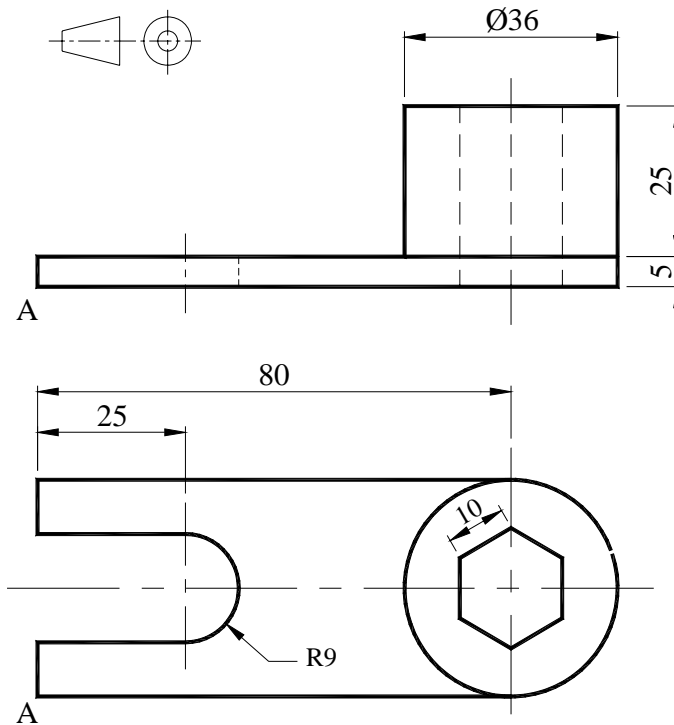


Fig. 4

5. Figure 5 shows a line diagram of a simple mechanism where crank **OA** rotates in a clockwise direction about **O**. The connecting rod **AB** slides through a pivot (trunnion) which is free to rotate about centre **C**. Plot, full size, the locus of point **B** for one complete revolution of the crank **OA**.

16 marks

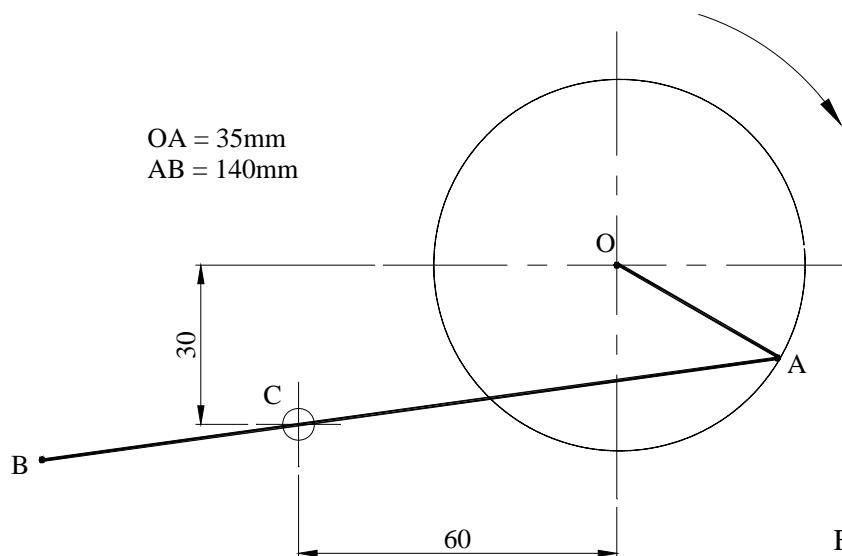
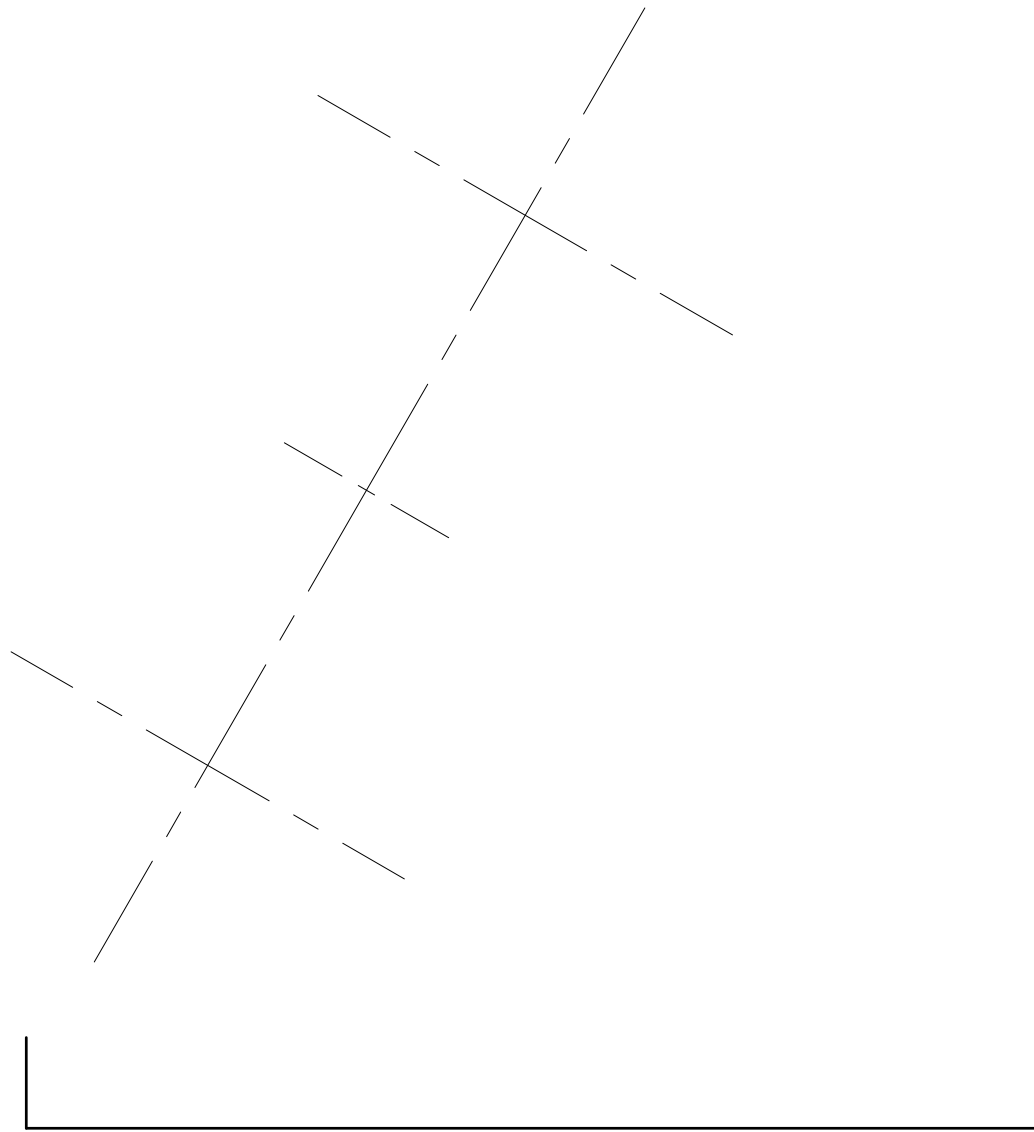
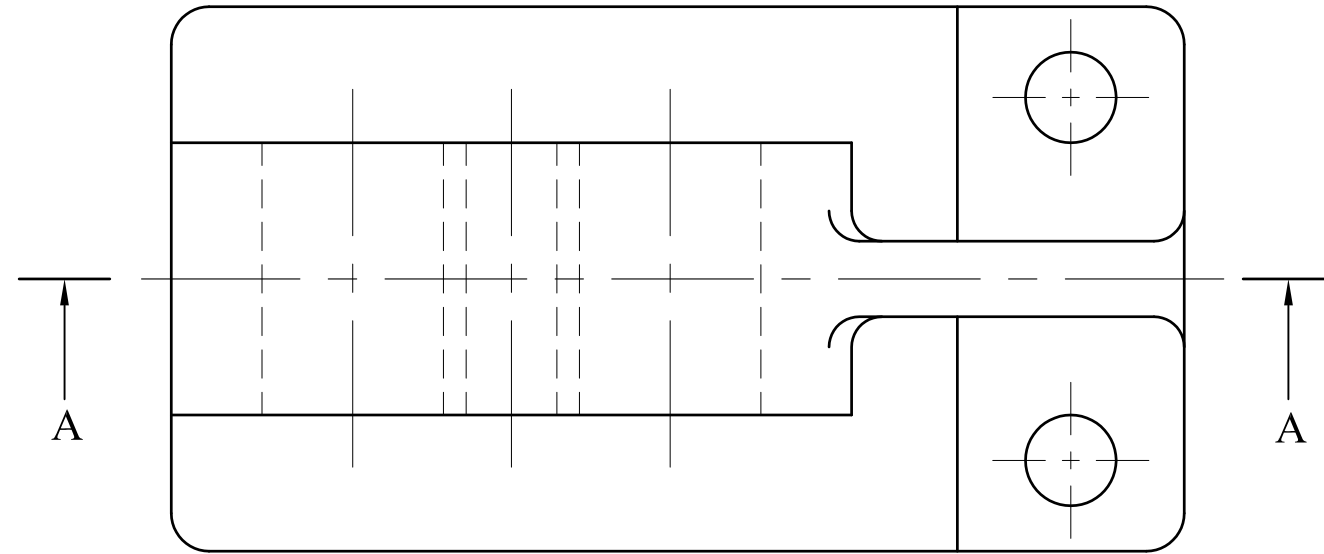


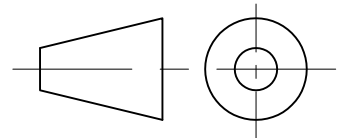
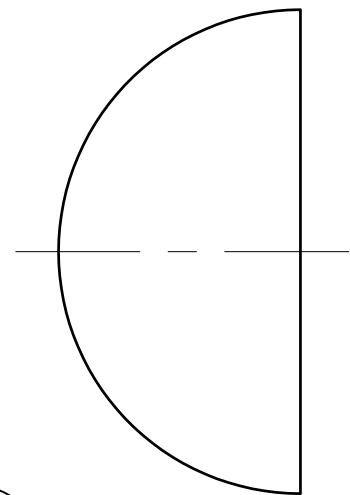
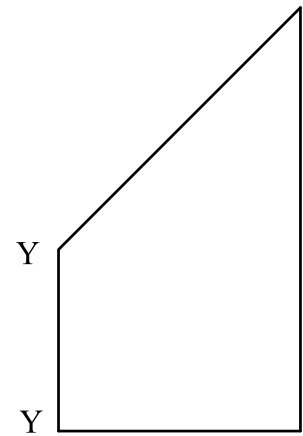
Fig. 5

QUESTION No.1

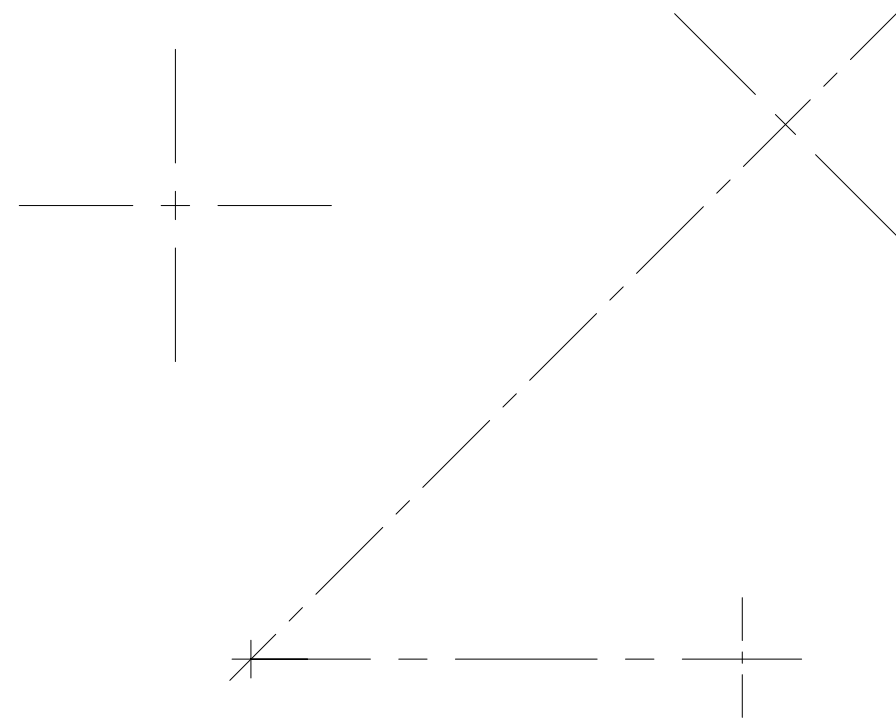


ALL FILLET RADII 5mm

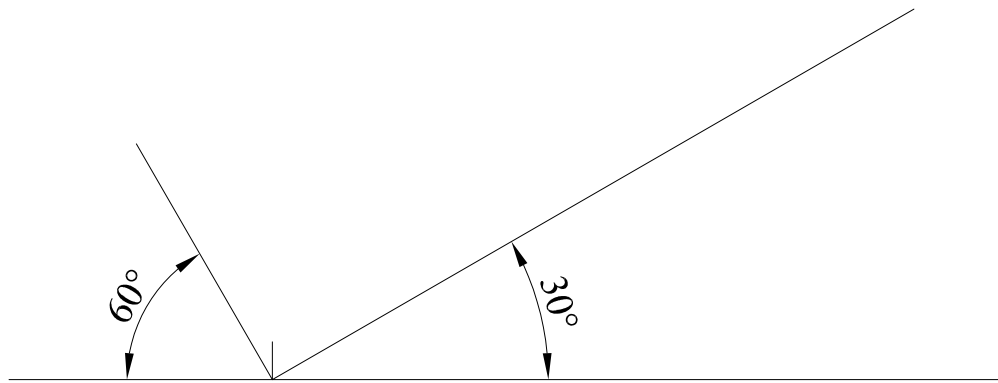
QUESTION No.2



QUESTION No.3



QUESTION No.4



QUESTION No.5

