JUNIOR LYCEUM ANNUAL EXAMINATIONS 2008

Educational Assessment Unit - Education Division

FORM 5   GRAPHICAL COMMUNICATION (TECH. DES.)   Time: 2 hours

Instructions

Write your name and class on ALL sheets.
Attempt ALL questions.
Questions should be attempted on the pre-printed answer sheets provided.
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 used.
Drawing aids may be used.

Information

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

NAME: _____   **CLASS:** _____

Question No.	1	2	3	4	5	6
Total mark	15	15	20	15	15	20
Marks awarded						

1. The figure on the right shows a radial arm bracket.
   Construct, full size, the bracket shown, by determining the unknown centres and the radius **Ra**.
   The given points **A** and **B** are common tangential points.
   Measure and write down the radius **Ra** in the space provided below.

15 marks

Ø20   Ø40

A

Ø20   Ø40

R40   Ra

B

R45

R25

20

A

B
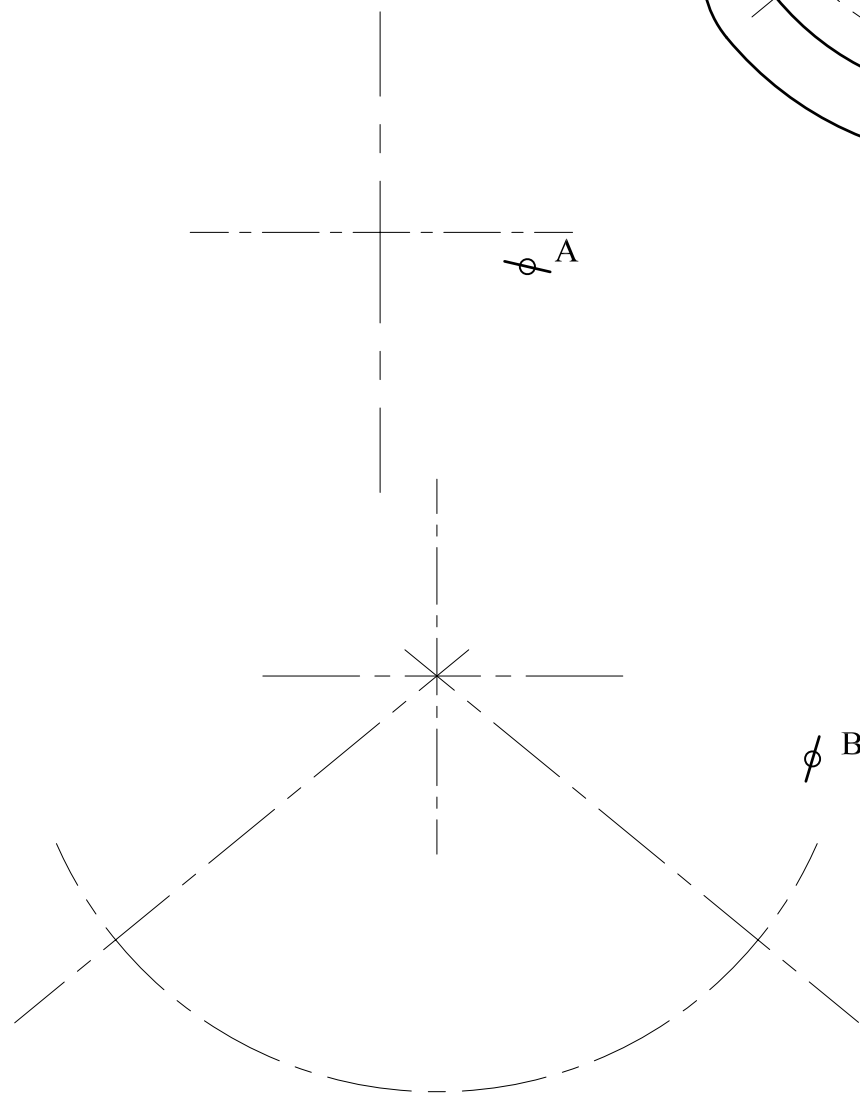
Radius Ra =   mm
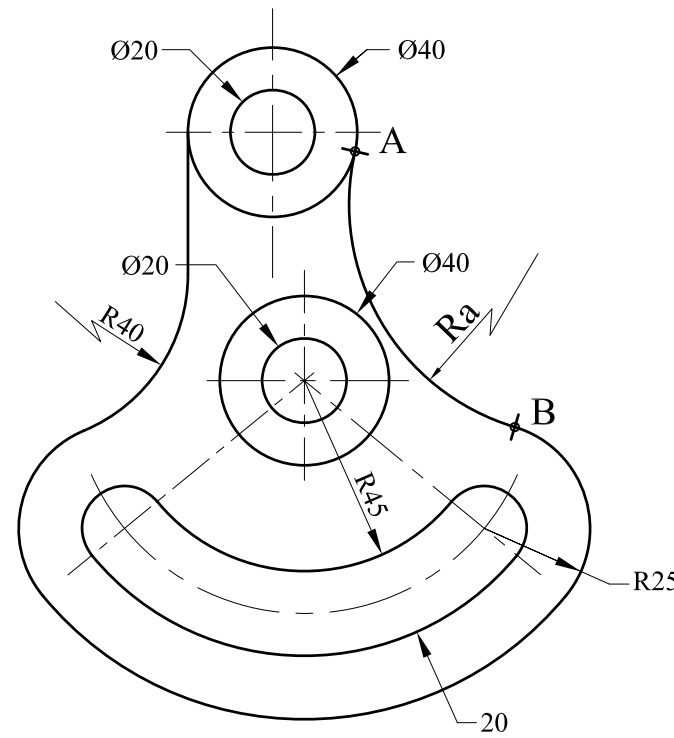
2. The figure on the right shows a mounting plate for a T.V.

   (a) Using the given base **A B**, shown below, draw full size the plate to the following dimensions:
   Angle ABC 105°   BC = 27mm
                           AE = 96mm
                           CE = 86mm
   Angle AFE 90°   AF = 90mm
                           CD = 15mm
   (b) reduce geometrically the figure drawn in (a), to a scale of 2 : 3.
   Show clearly all construction lines.

15 marks

F   E
90°   R50
                    D
                      C
A   B

NOT TO SCALE

A   B
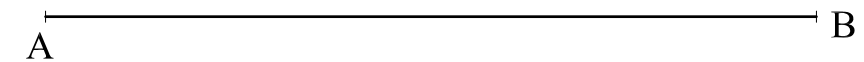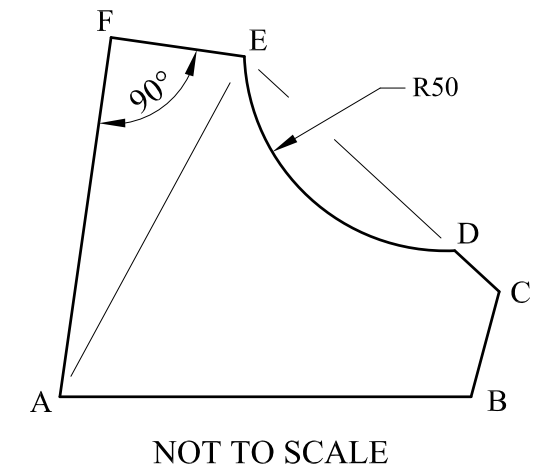
3. The figure on the right shows an orthographic projection of a typical Maltese wooden balcony supported on three stone **Corbals** (*saljaturi*) A, B and C.
An incomplete perspective drawing of corbal '**A**' and the visible part of corbal '**C**' are given.
   i) Locate the vanishing points **VP₁** and **VP₂**
   ii) Complete the drawing of corbal '**A**'.
   iii) Using the given **scale**, locate and draw corbal '**B**'.

20 marks

A

B

C

Scale:

A B C
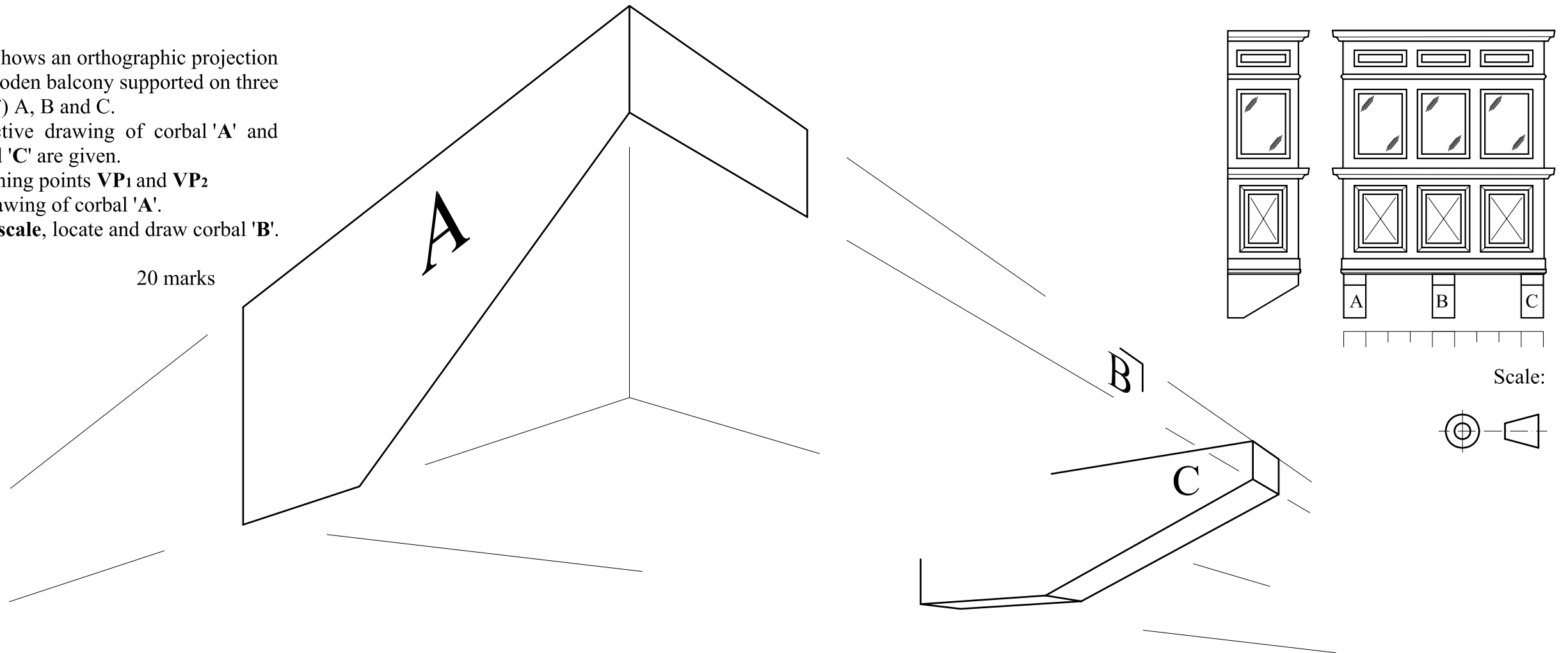
4. The figure shows the profile of an elliptical bulb which consists of a part ellipse, two arcs of radius '**R**' blending with a parallel section at the end.
OP and OQ indicate half the major and minor axis respectively.
Using the given start lines:
a) construct, using any recognised method other than a trammel, the part ellipse
b) draw the two blending arcs showing clearly how the radius '**R**' was determined.
   *Note: The centres of the blending arcs lie at the intersection between the normals to the ellipse at points **a - a**, and normals to the horizontal lines at points **b - b**.*

15 marks

Q

a

b

P   O

a

b

Q

NORMAL   NORMAL

P   O

R

PART ELLIPSE
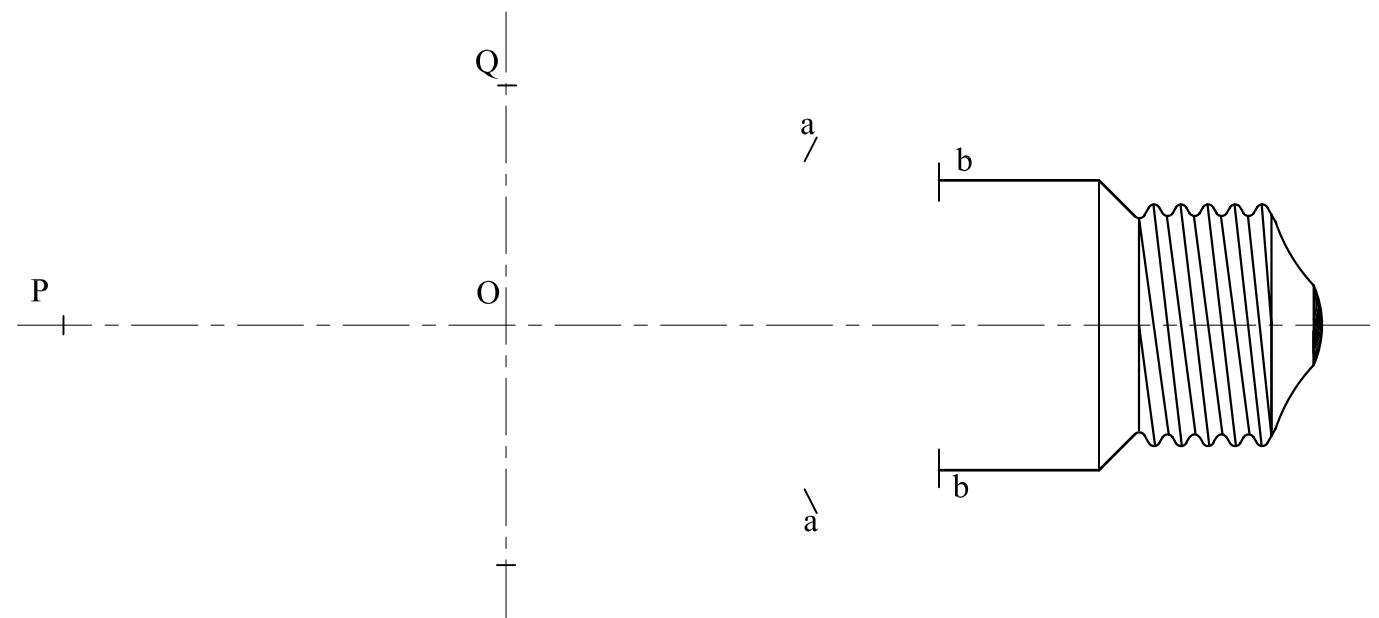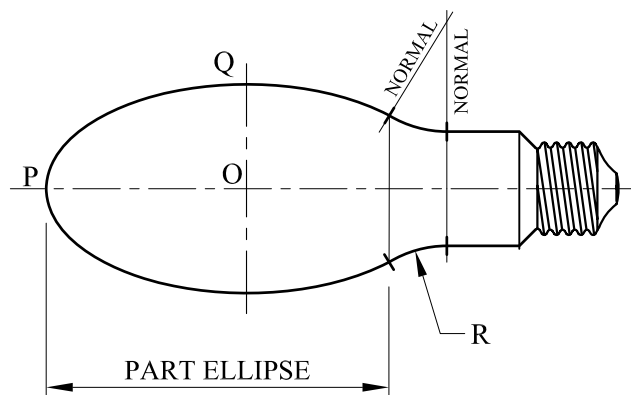
Sheet 2 of 4

5. The figure below shows a complete end elevation, a complete plan and a pictorial view of a
   **SUPPORT BRACKET**.
   Draw full size, in first angle orthographic projection:
   a sectional front elevation on the section plane **A** - **A** in the direction indicated by the arrows
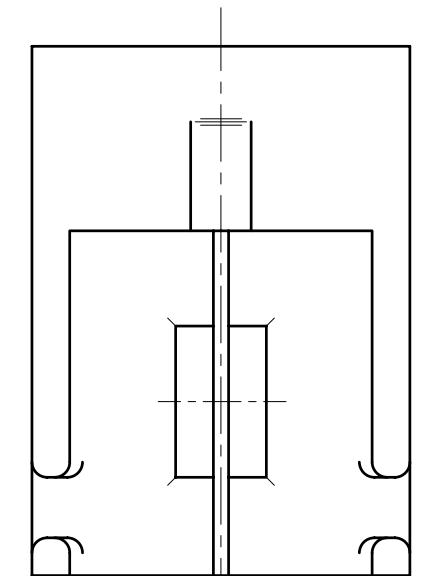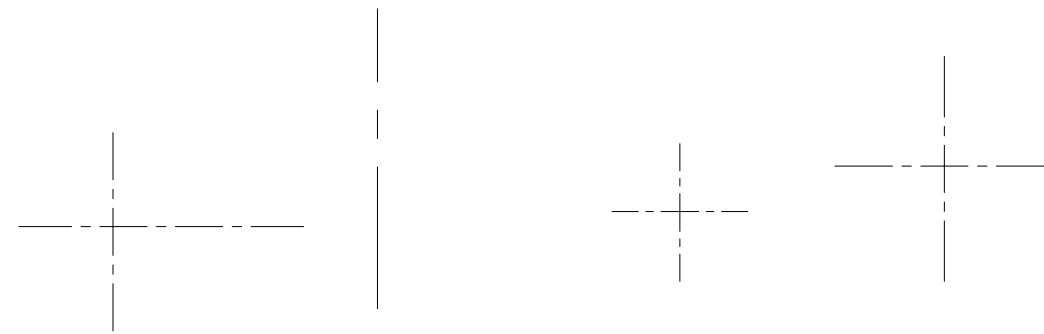   No hidden detail is required in the solution.
   Add the following to your drawing
   (i) the appropriate symbol to show the projection angle used.
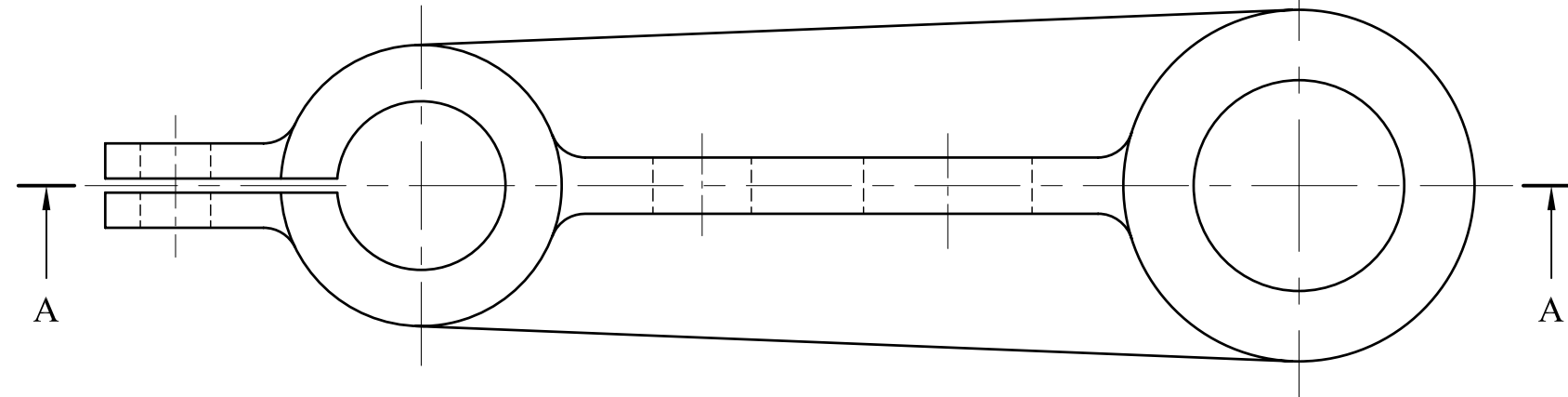   (ii) the appropriate statement regarding the section (A - A), underneath the sectional view.
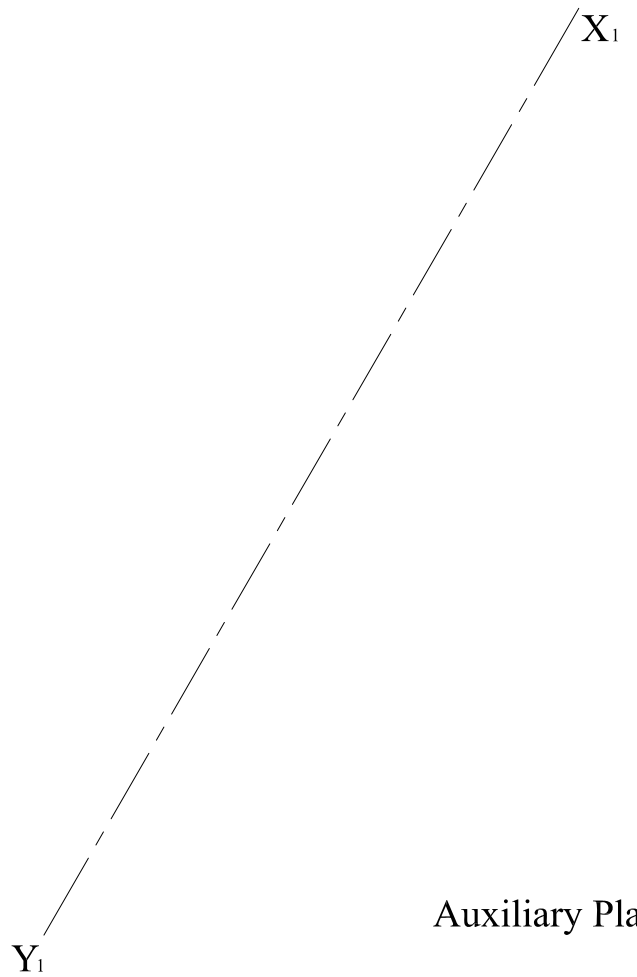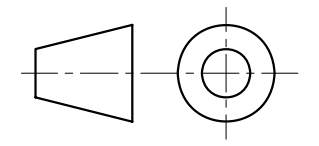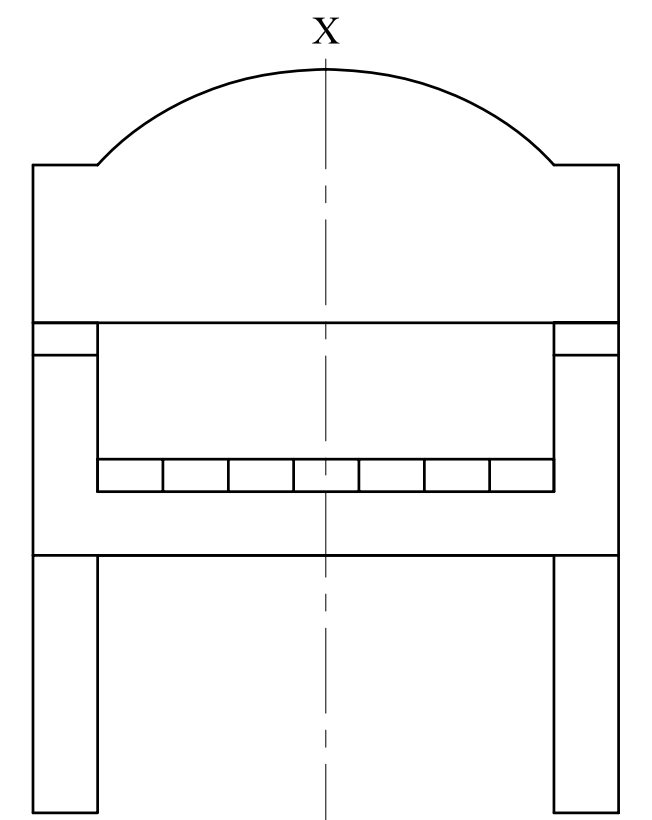
15 marks
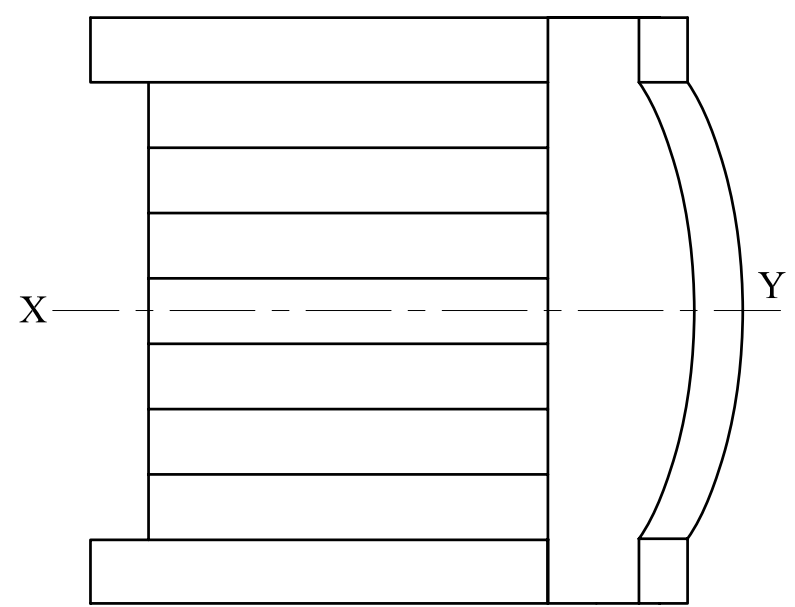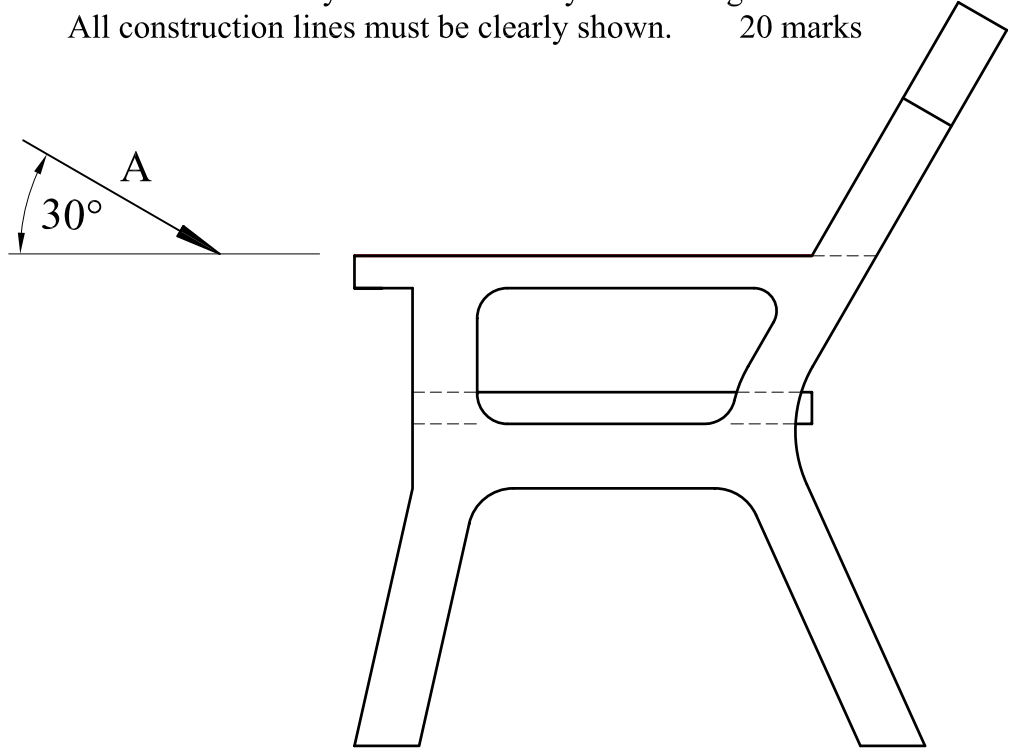
10

20°
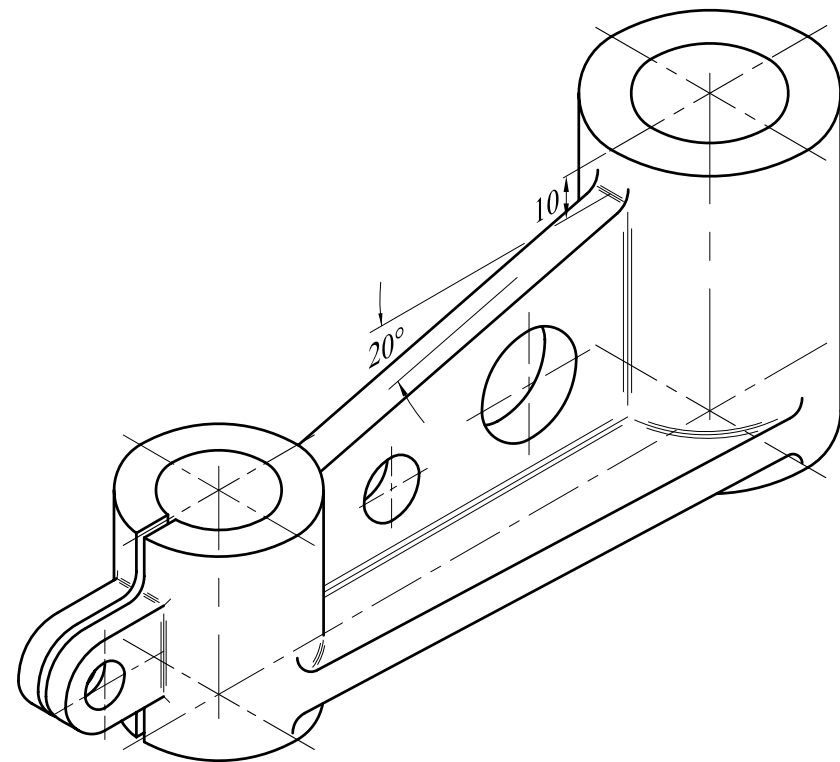
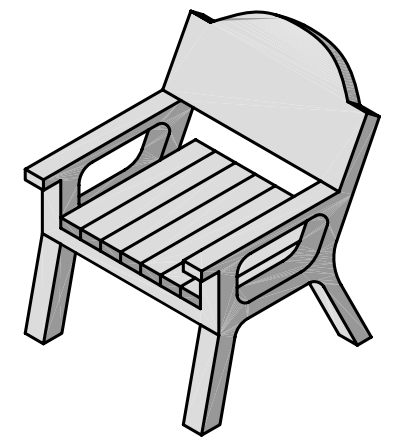All Fillet Radii 5mm

End Elevation

A

A

Plan view

Sheet 3 of 4

6. The front, side and plan views of an **arm chair** are given in first angle projection.
   Project an **auxiliary plan** as seen when looking in the direction of arrow '**A**'.
   Don not include any hidden detail to your drawing.
   All construction lines must be clearly shown.   20 marks

A

30°

X

X₁

Y

Y₁

X —— Y

Auxiliary Plan

Educational Assessment Unit   Name: Class: