

JUNIOR LYCEUM and SECONDARY SCHOOL
ANNUAL EXAMINATIONS 2009
DIRECTORATE FOR QUALITY AND STANDARDS IN EDUCATION
Educational Assessment Unit

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.

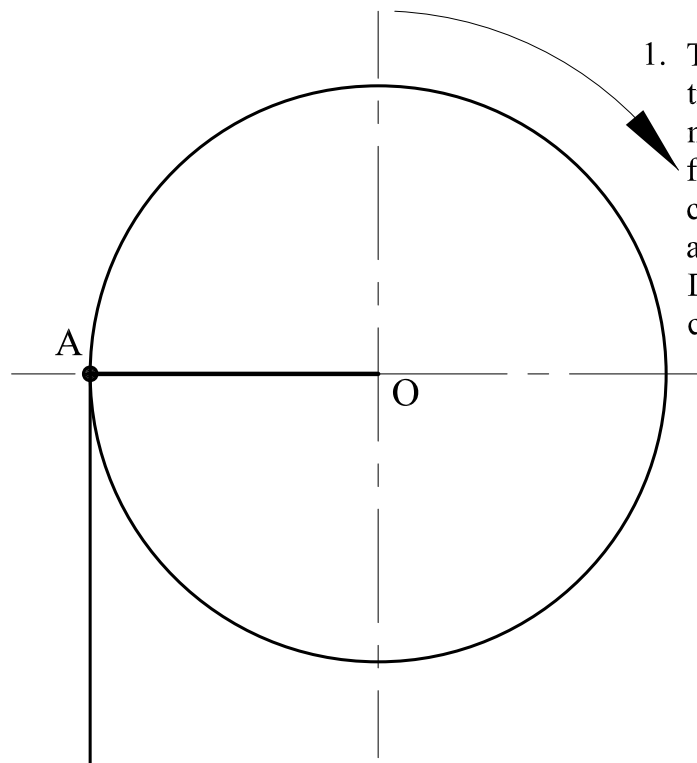
Estimate any dimensions not given.

Marks will be awarded for accuracy, clarity and appropriateness of construction.

NAME: _____

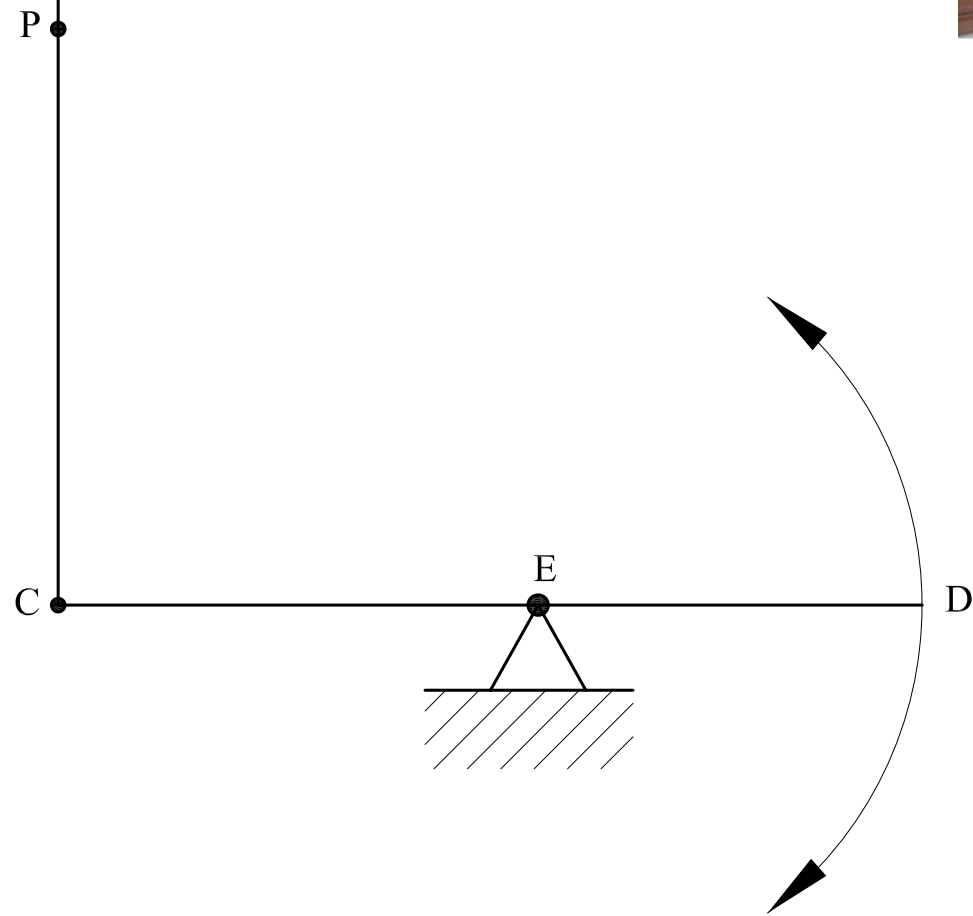
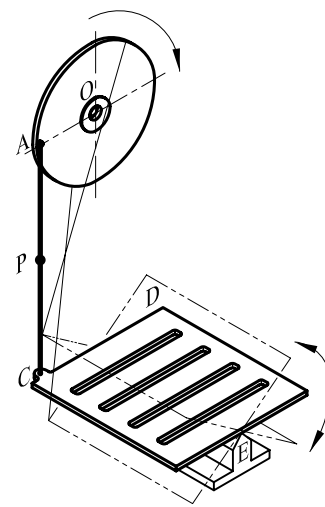
CLASS: _____

Question No.	1	2	3	4	5	6
Total mark	12	16	16	16	20	20
Marks awarded						



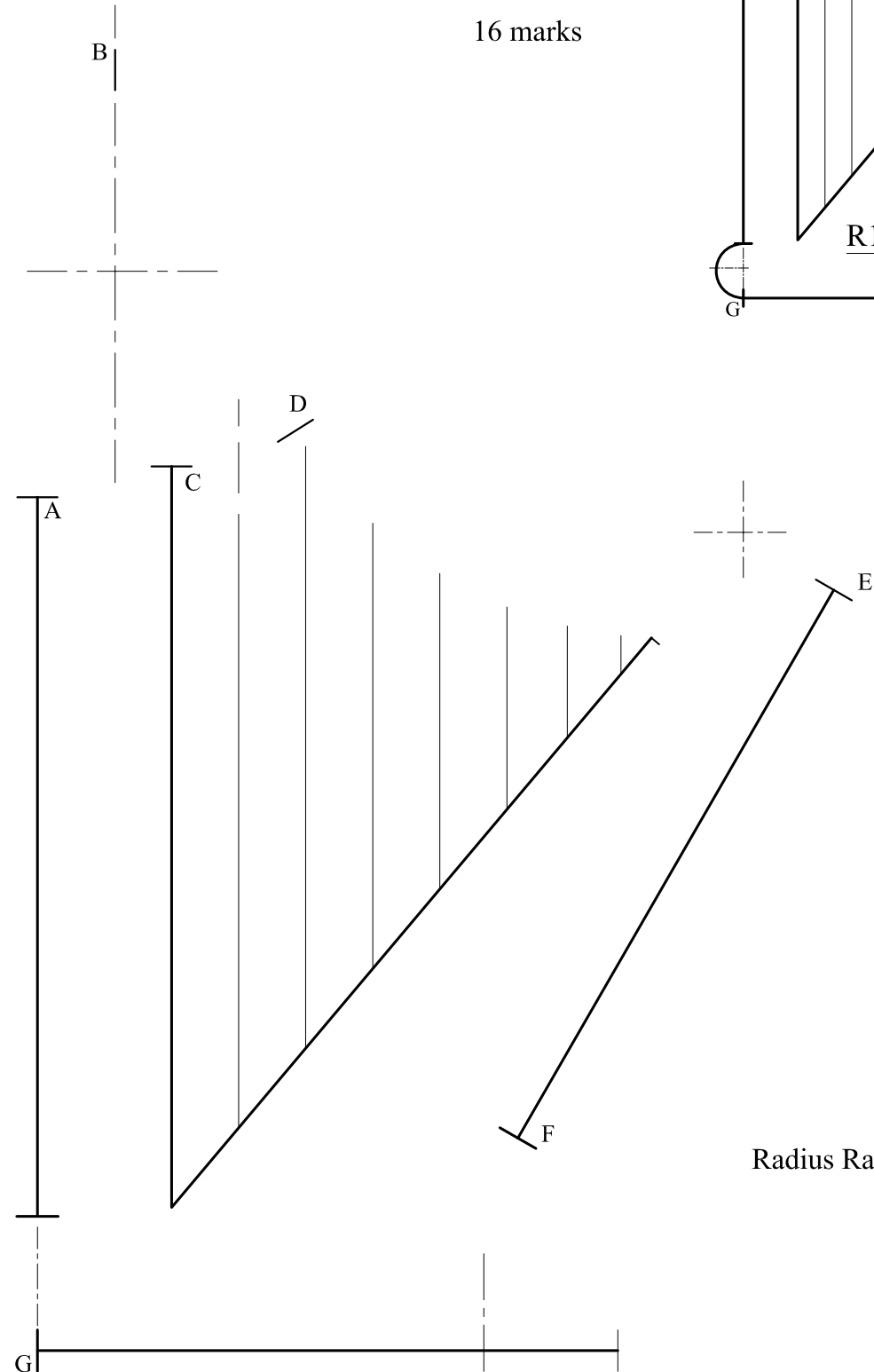
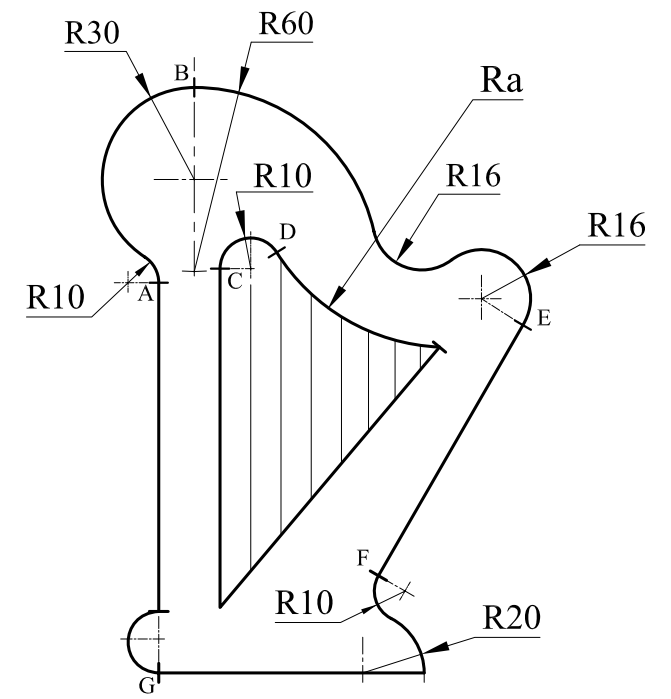
1. The figure below shows the line diagram of a treadle motion generally used for sewing machines. O and E are fixed points and footrest CD is free to swivel about E. The connecting rod AC is connected to the crank and footrest at A and C as shown. Draw the locus of point P during one complete revolution of crank O - A (wheel).

12 marks



2. The figure on the right shows a complete elevation of a Harp. Using the given start lines, construct geometrically, full size, the shape of the Harp by determining the unknown centres and the radius **Ra**. The given points A, B, C, D, E, F and G are common tangential points. Enter radius **Ra** in the space provided below.

16 marks

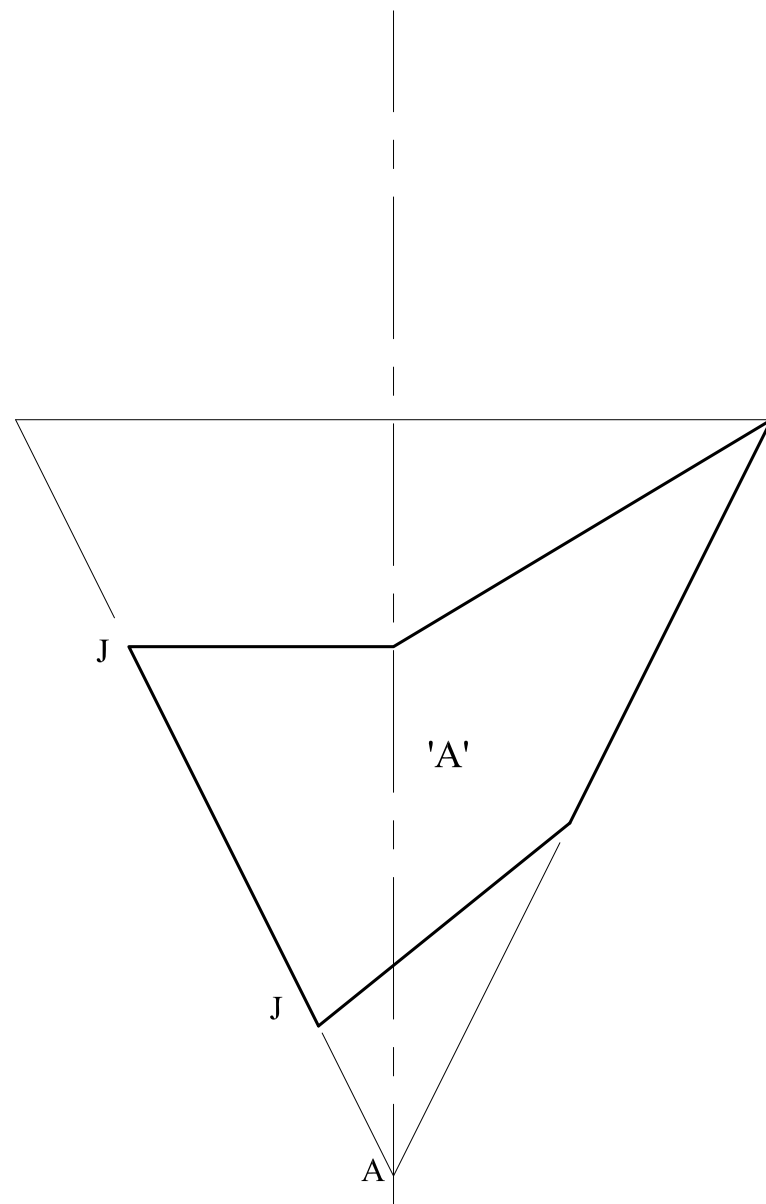
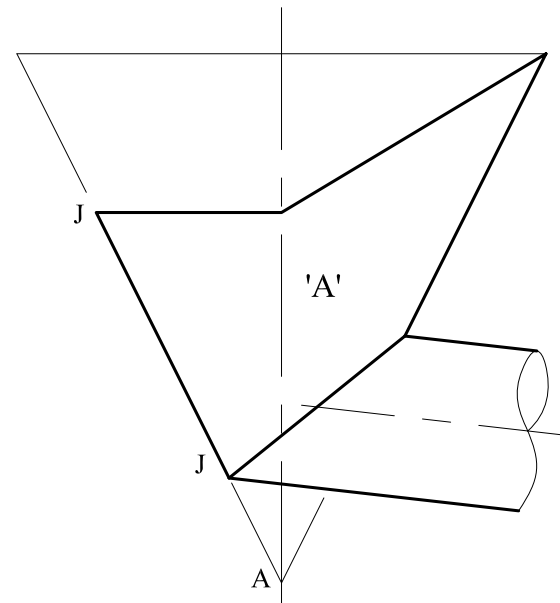


Radius Ra =mm

Sheet 1 of 4

3. The figure on the right shows the side elevation of a thin sheet metal drain which is cut from a hollow **circular cone**.
 Draw, full size, the development of part 'A' **only** of the drain, assuming the joint line along **J - J**.

16 marks



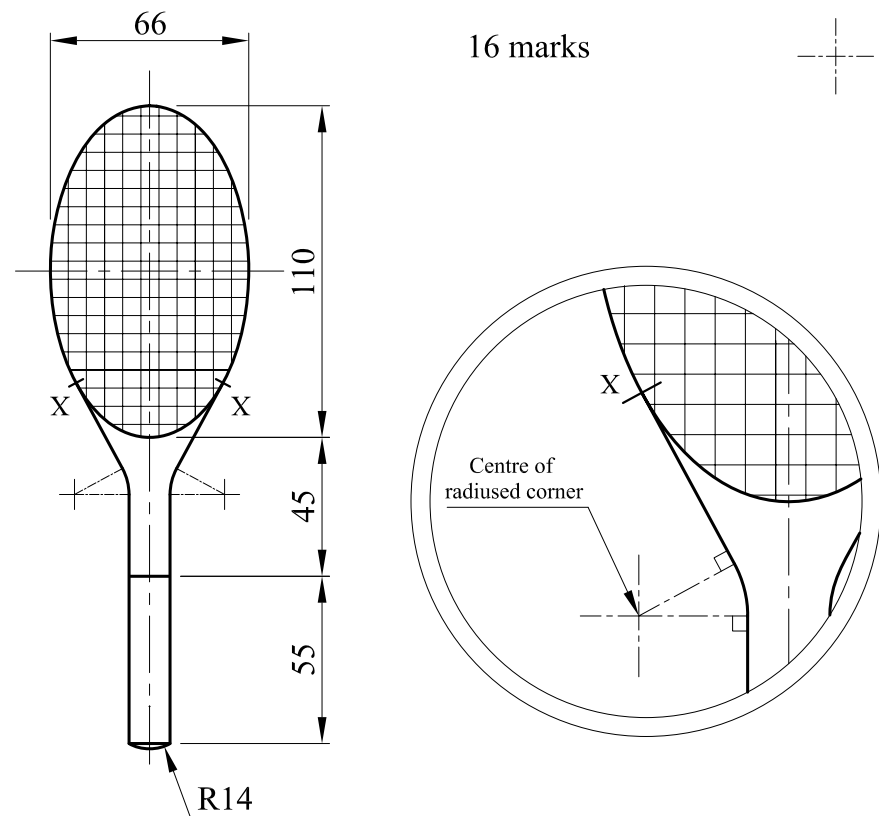
A
|
J

J

4. The figure below shows a lawn tennis bat which consists mainly of an elliptical frame joined to the handle by means of two straight lines which are tangents to both the ellipse and the radiused corners on the handle.

- Using any method other than a trammel, construct geometrically the ellipse to the given dimensions.
- On X - X construct the two tangents.
- Determine graphically the radiused corners.
- Complete the handle

Note: Do not draw the mesh.



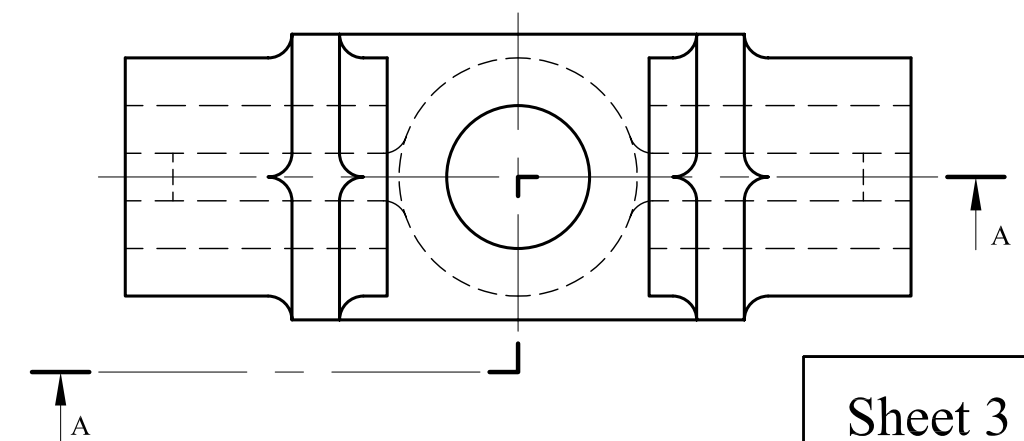
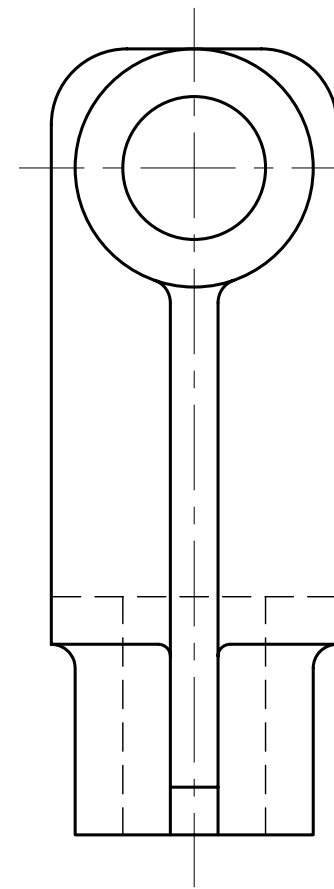
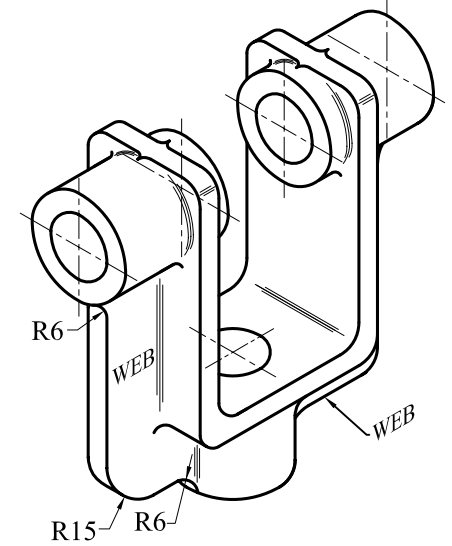
5. Two orthographic views, in first angle projection and a pictorial sketch of a casting forming part of a Lifting Device, are given. Draw full size, in first angle orthographic projection: a half sectional front elevation on plane A - A. No hidden detail is required in the solution.

Note: the right hand half only is to be in section.

Add the following to your drawing:

- the appropriate symbol to show the projection angle used.
- the appropriate statement regarding the section (A - A), underneath the sectional view.

20 marks

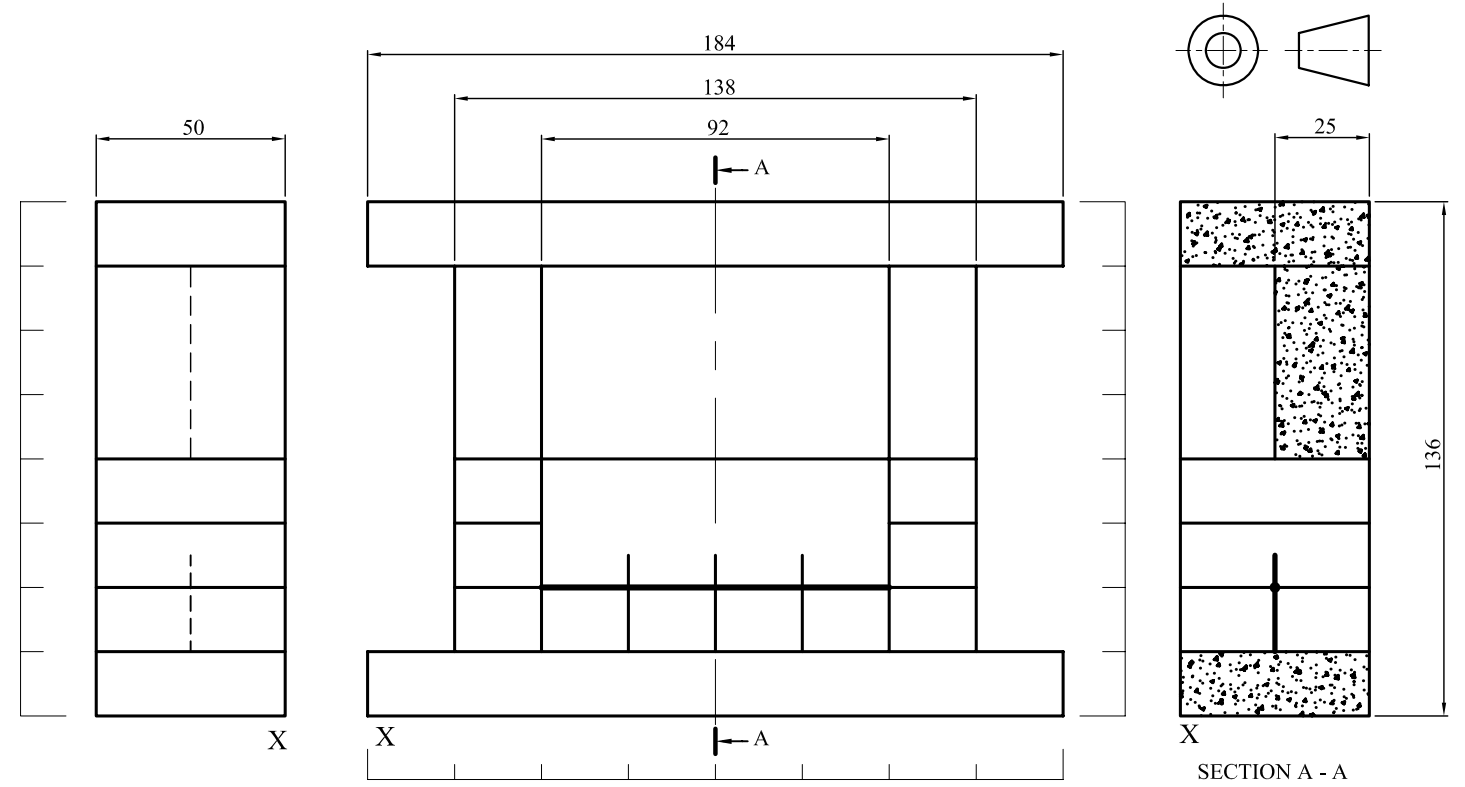


All Fillet Radii 3mm

Sheet 3 of 4

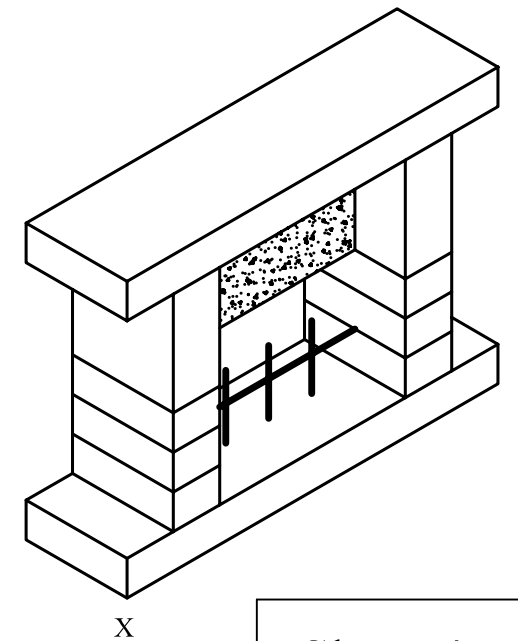
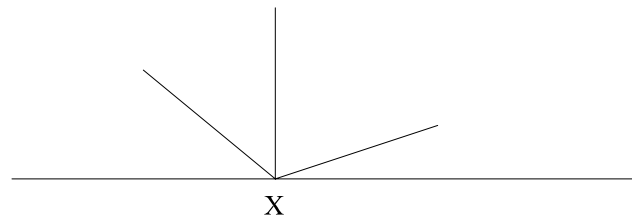
6. Three orthographic views and an isometric sketch of a brick fireplace are given. Using the given vanishing points and start lines, draw an estimated two-point perspective drawing of the fireplace.
Do not use colour or shading to your drawing.
Leave all construction lines visible.

20 marks



VP1

VP2



Sheet 4 of 4