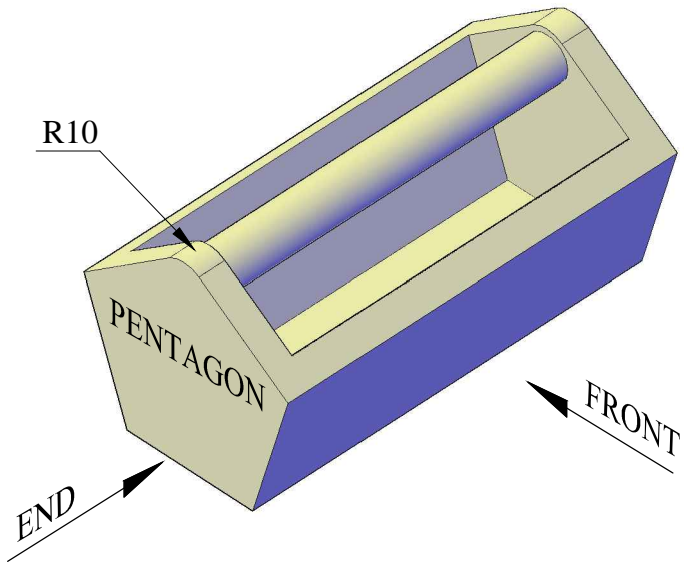


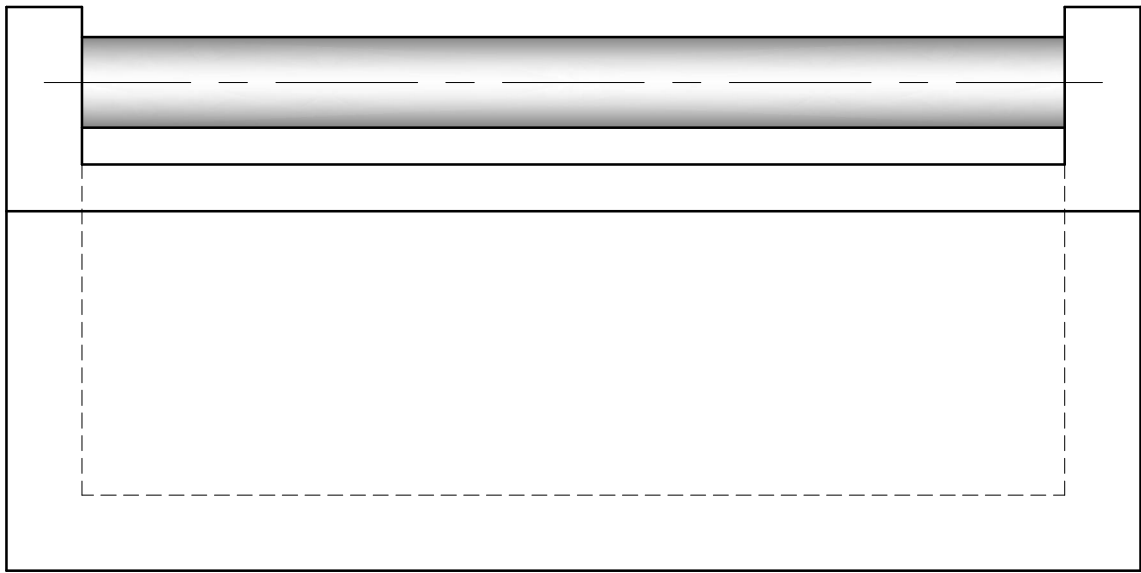
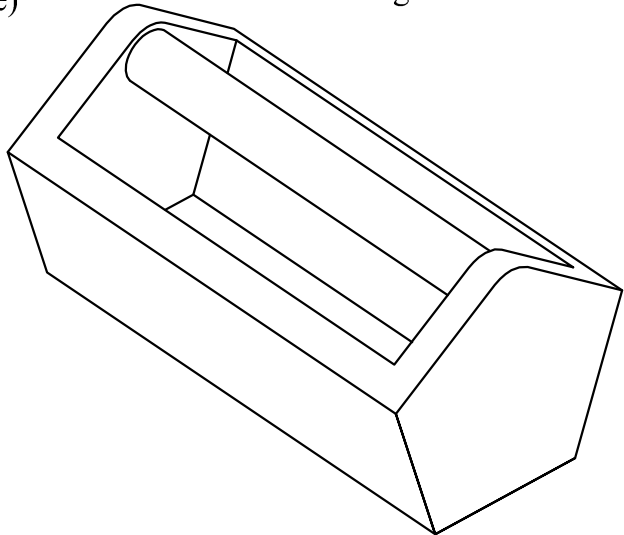
Question 1. A pictorial view of a kids' toolbox is given below. The ends of the box have the shape of a **regular pentagon** with a rounded top corner (R10mm). The Front View of the toolbox is given on the right. Using the given start lines and in the spaces provided:

- Draw the End View (the given line XY is the base of the regular pentagon).
- Project the Plan.
- State the projection angle.
- Draw the projection symbol.
- Shade the pictorial line drawing in box (e) below and give the box a wooden texture.

*Note:* 1. Material thickness is 10mm.  
 2. Show hidden detail in both views.  
 (20 marks)



(e) Shade and give a wooden texture.



FRONT VIEW

X ————— Y

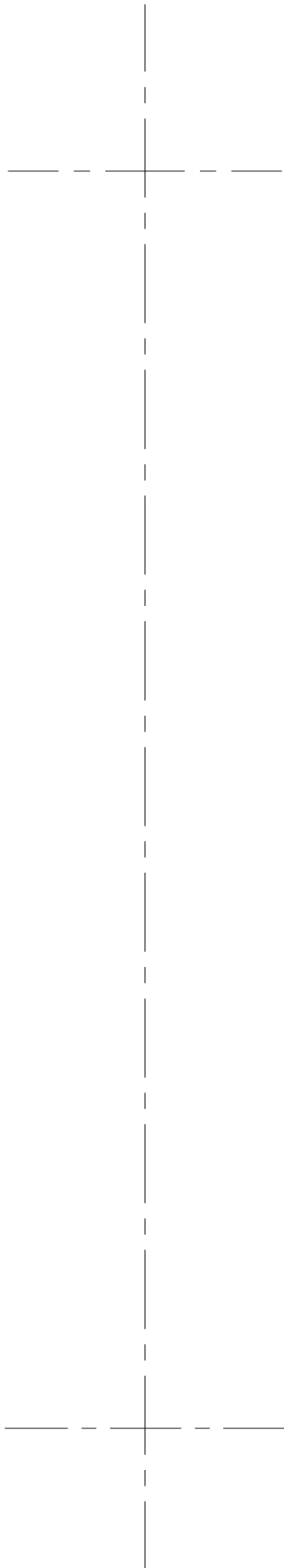
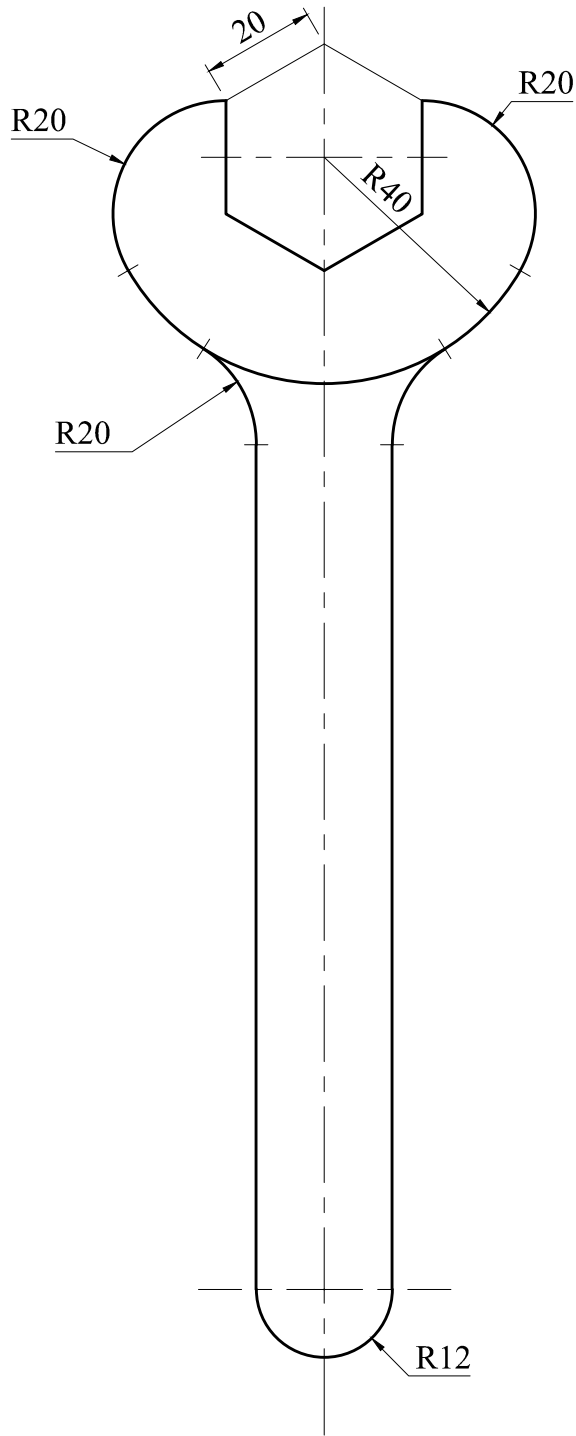
END VIEW

PLAN

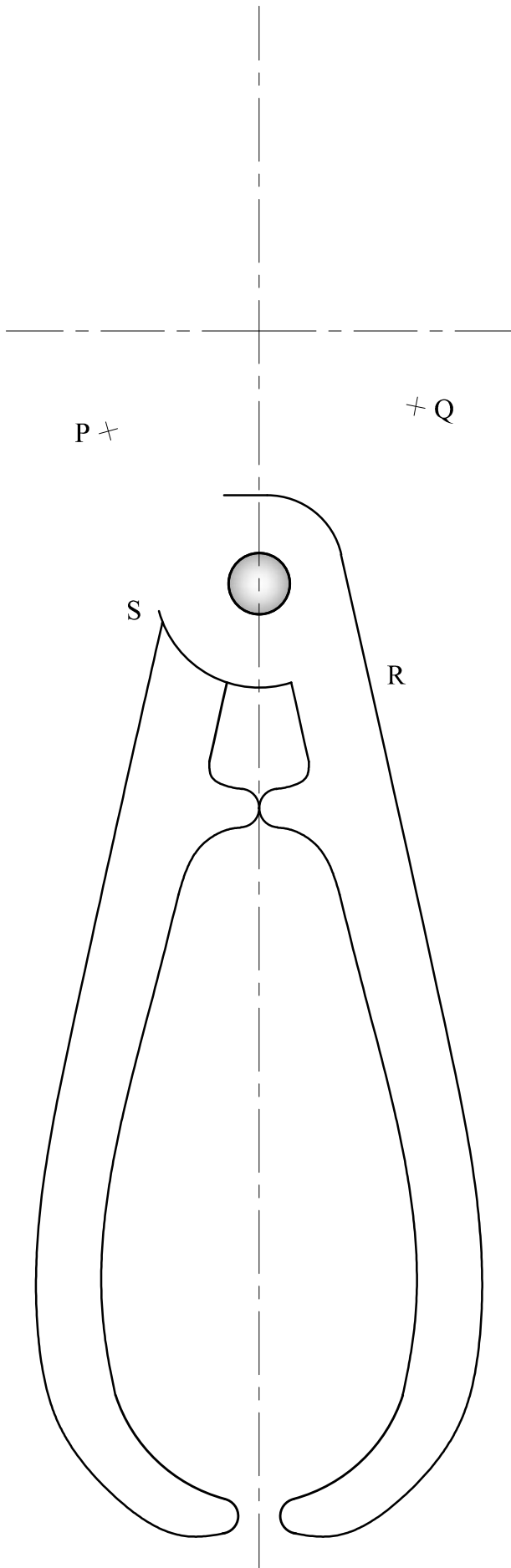
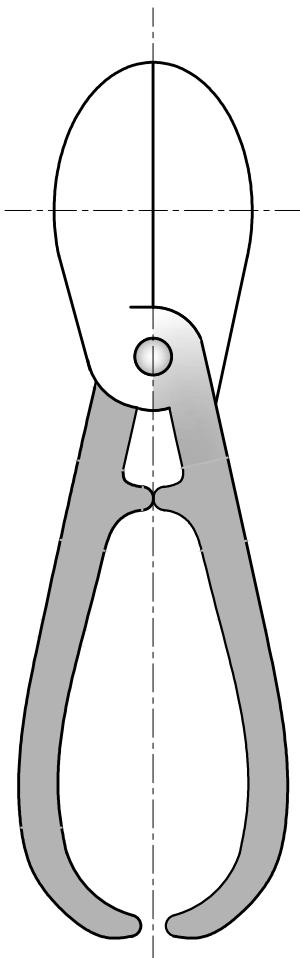
..... ANGLE PROJECTION

----- PROJECTION SYMBOL

Question 2. The profile of an open-ended spanner, consisting of lines and blending arcs, is given below.  
On the given start lines, construct the profile of the spanner. Show all constructions necessary to locate centres and points of tangencies.  
(15 marks)



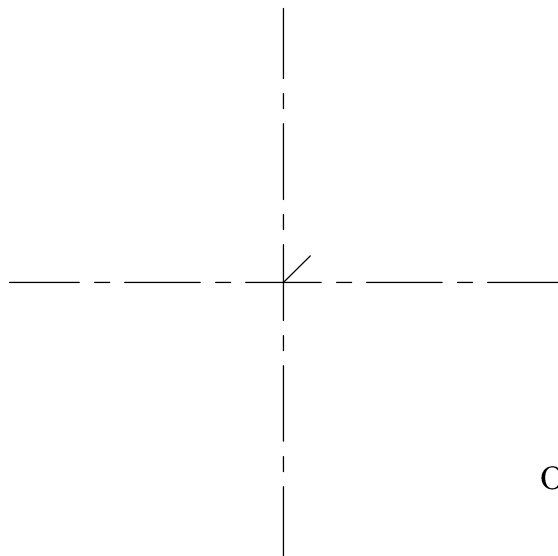
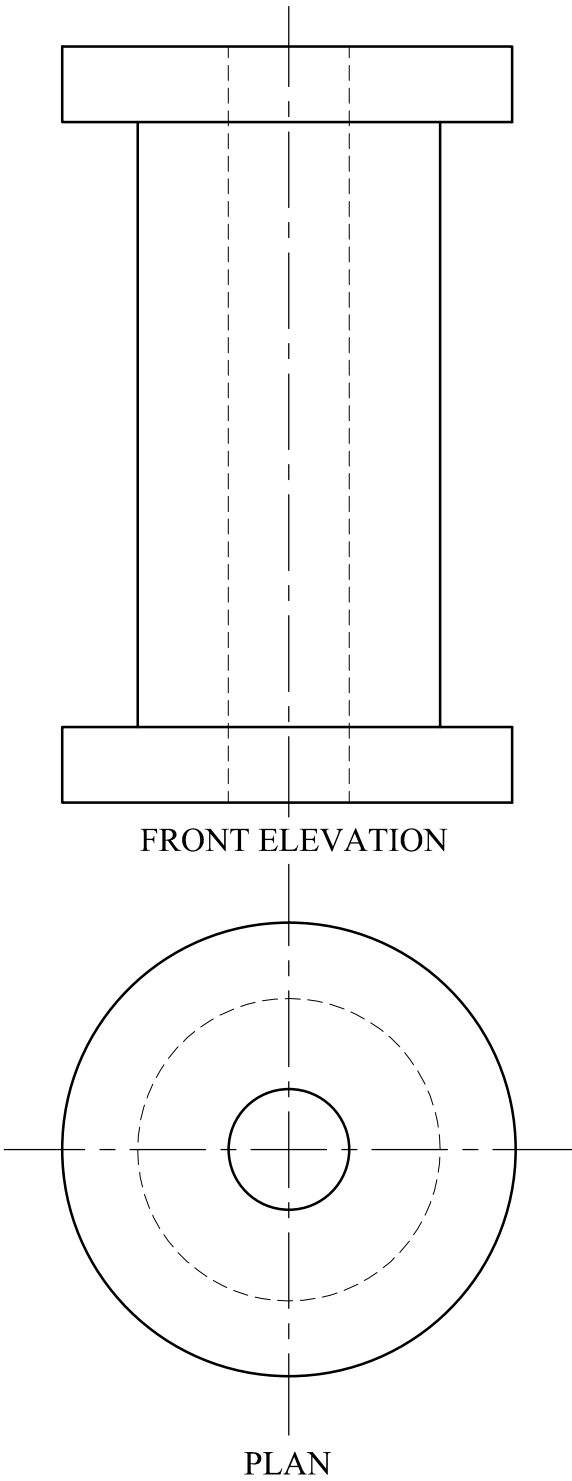
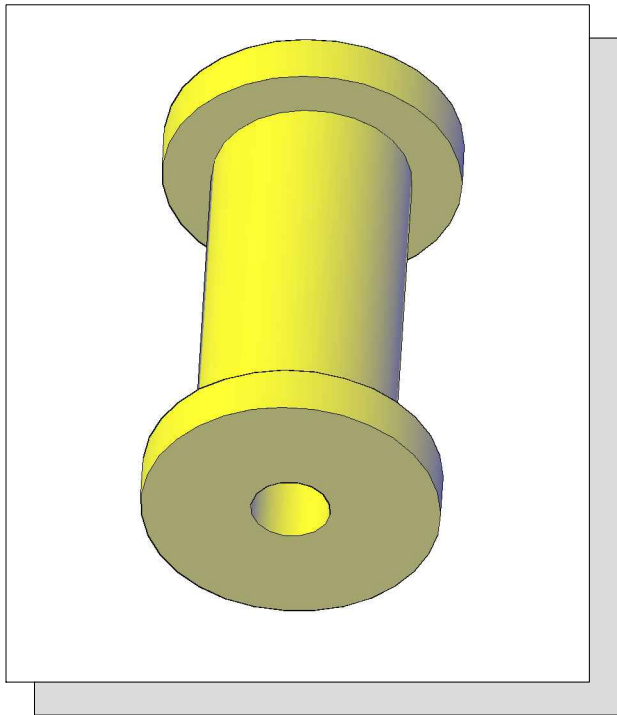
Question 3. A drawing of a pair of tin snips used for cutting sheet metal is given below. The shape of the blades, the upper part of the snips, is partly elliptical. An incomplete drawing of the snips is given on the right. Using the given start lines, complete the outline of the snips by following steps (a) to (d):  
a. Construct a part ellipse PQ having a major axis of 80mm and a minor axis of 52mm.  
b. Construct the tangent QR.  
c. Join line PS.  
d. Colour and shade the handles.  
(15 marks)



Question 4. A three-dimensional view and two **Full Size** orthographic views of a wooden spool (used with sewing machines) are given.

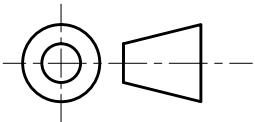
Using the given start lines below, construct a Cabinet Oblique view of the spool.

*Note:*  
Place the circular part of the spool facing the viewer.  
(12 marks)



OBLIQUE VIEW

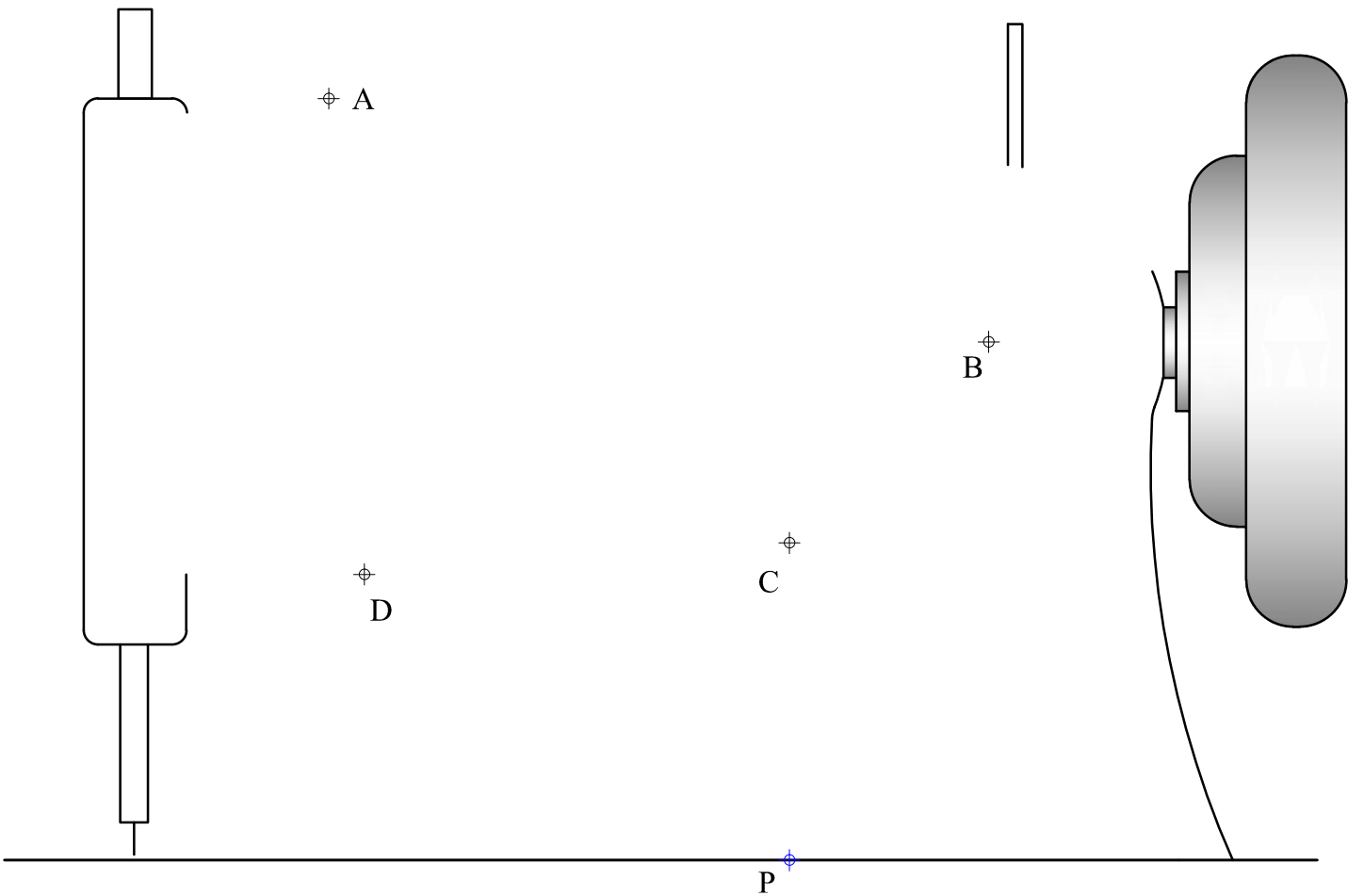
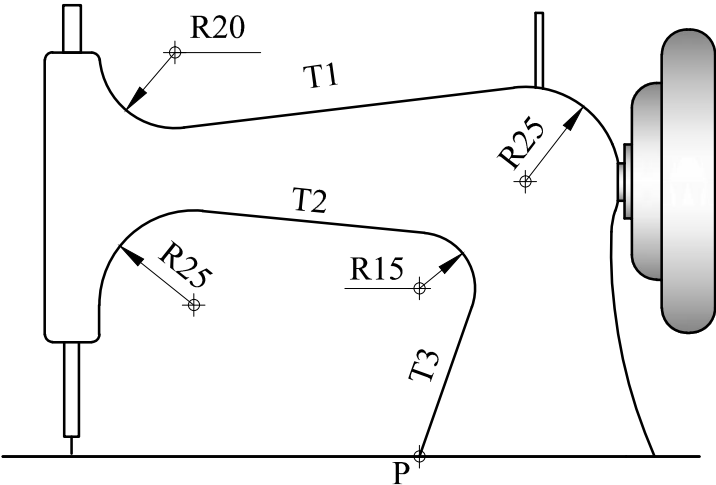
SCALE 1 : 1



Question 5. A dimensioned profile of a sewing machine is shown on the right. On the start lines given below complete the profile by:

- Drawing arcs A (R20), B (R25), C (R15) and D (R25).
- Constructing tangents T1, T2 and T3.

*Note: Point P is the end point of tangent T3.*  
(14 marks)



Question 6. The management of a confectionery establishment wants to ensure that their employees abide by the following important hygiene regulations:

- a. Wash your hands
- b. Wear the apron provided

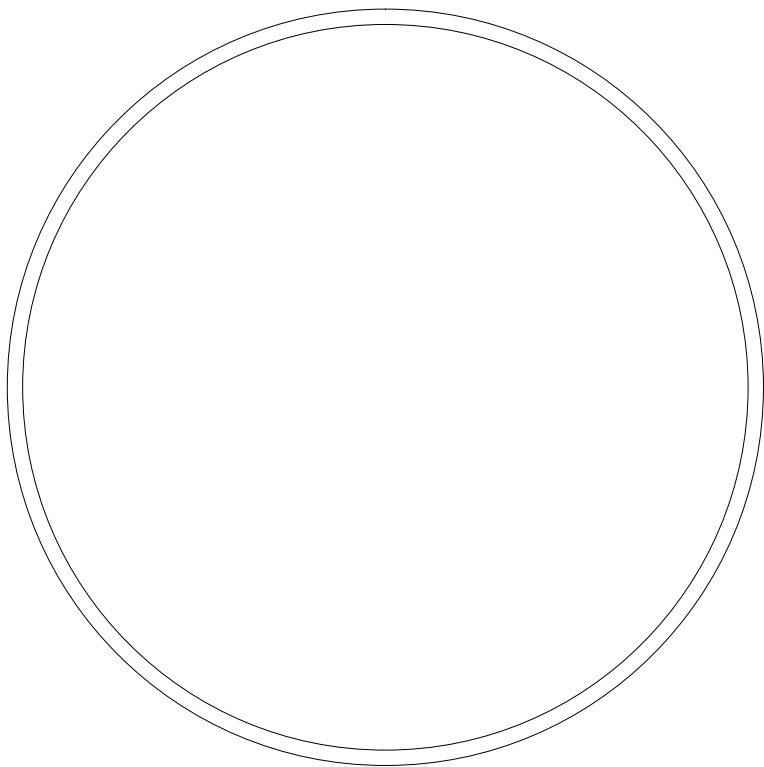
You have been asked to design a mandatory sign to illustrate graphically one of the above regulations.

- Use the rectangular box below to draw preparatory sketches.
- Draw the final drawing in the given circle.
- Colour your drawing according to approved standards regulations.

(10 marks)



PREPARATORY SKETCHES



FINAL DRAWING OF THE MANDATORY SIGN

Question 7. A 3-D model of a conical **Cake Decorating Nozzle** is shown on the right.

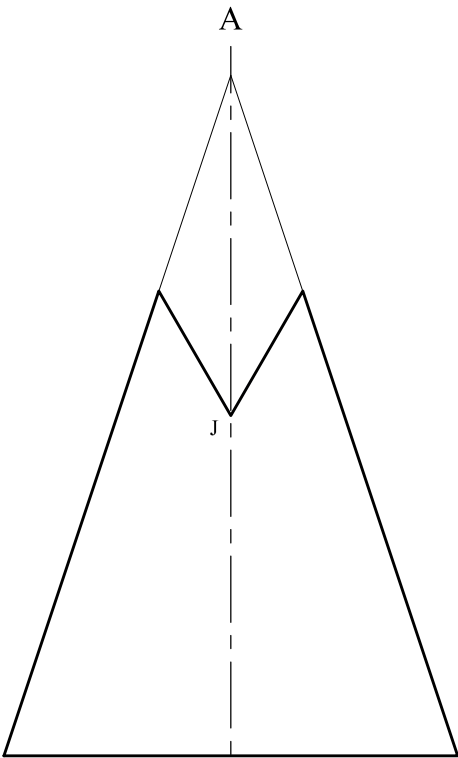
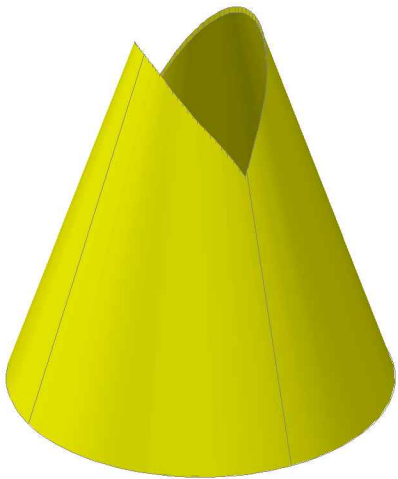
A Front elevation and an incomplete plan are given below.

In the space provided and on the given start lines:

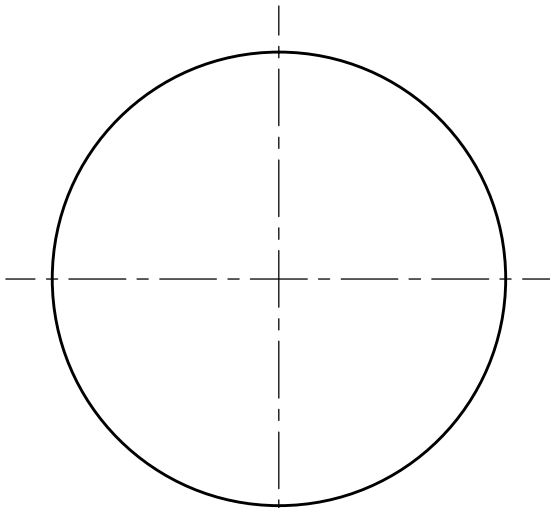
- a. Complete the plan.
- b. Construct the surface development of the cut cone.

*Note: Place the joint line along J-J.*

(14 marks)



FRONT ELEVATION



PLAN

SURFACE DEVELOPMENT

