

Question 1.

A dimensioned profile of a food mixer is shown on the right.

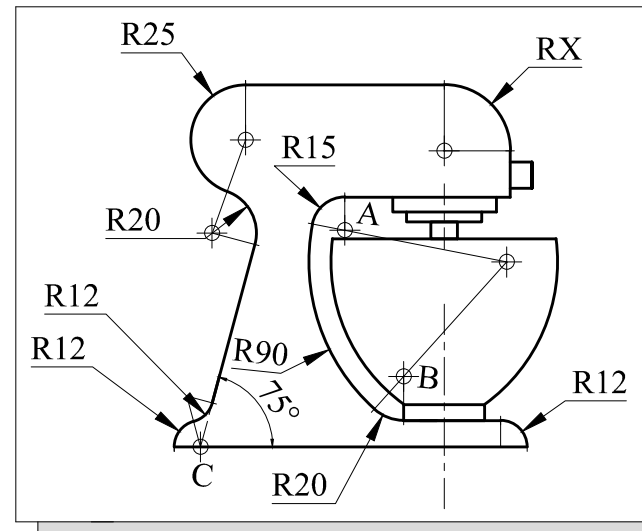
An incomplete outline of the mixer is given below.

Using the given start lines and dimensions, complete the missing lines and arcs showing clearly all constructions necessary to locate the centres and the points of tangencies. Measure and state RX.

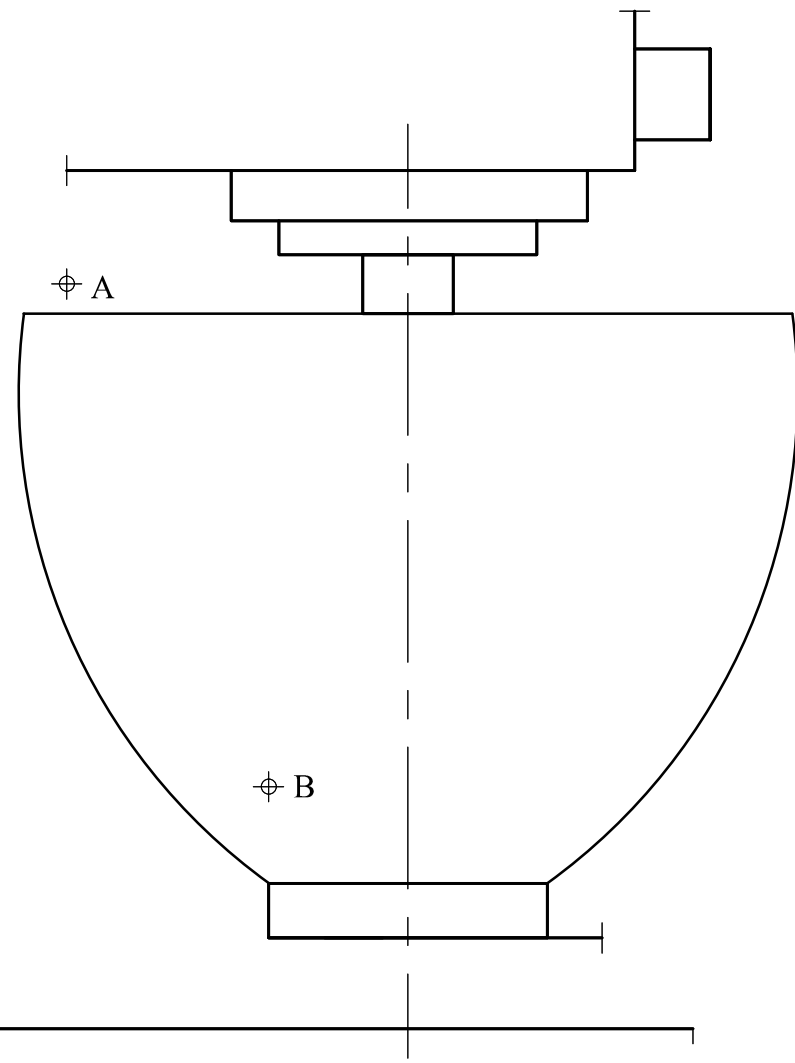
Notes:

- The points of tangencies are indicated by short dashes.
- A and B are centres of R15 and R20 respectively.
- C is the centre of R12 and the base point of the 75° inclined line.

(15 marks)



_____ RX = mm



Question 2.

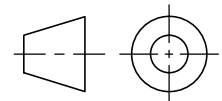
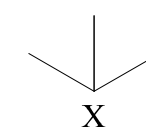
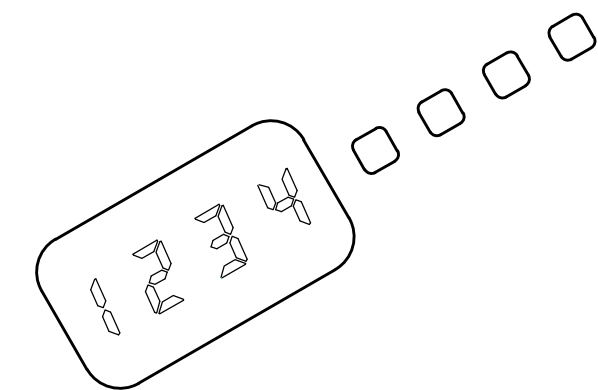
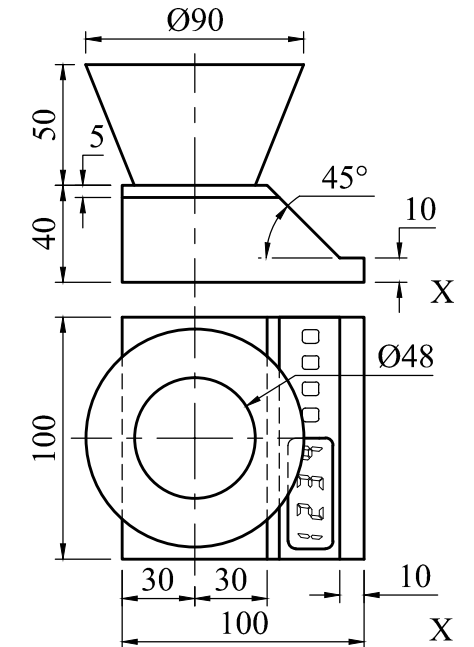
Two orthographic views of a digital kitchen scale are given on the right.

Using the given dimensions and on the given start lines, construct an **isometric view** of the scale.

Notes:

- Ignore the thickness of the conical bowl.
- Place corner X in the lowermost position.

(15 marks)



Question 3.

Figure 3 (a) shows an iron rosette used for making pastries. In the space provided and on the given start lines, complete the construction of a **quarter profile** of the rosette by following the steps below:

- Using the appropriate angle, divide the given circle into 8 equal sectors and draw an octagon resting on a corner, as shown in the illustrations.
- Inside triangle BOC inscribe a part circle tangential to sides OB, BC and OC.
- Extend OB to A and OC to D and escribe a part circle tangential to sides AB, BC and CD.
- Complete the quarter pattern by rotating/reflecting the found centres.

Notes:

- Line in with bold lines and curves as indicated in Figure (b).
- Leave all construction lines visible.

(12 marks)

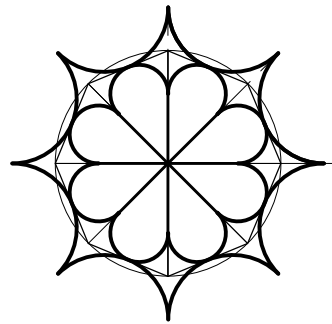
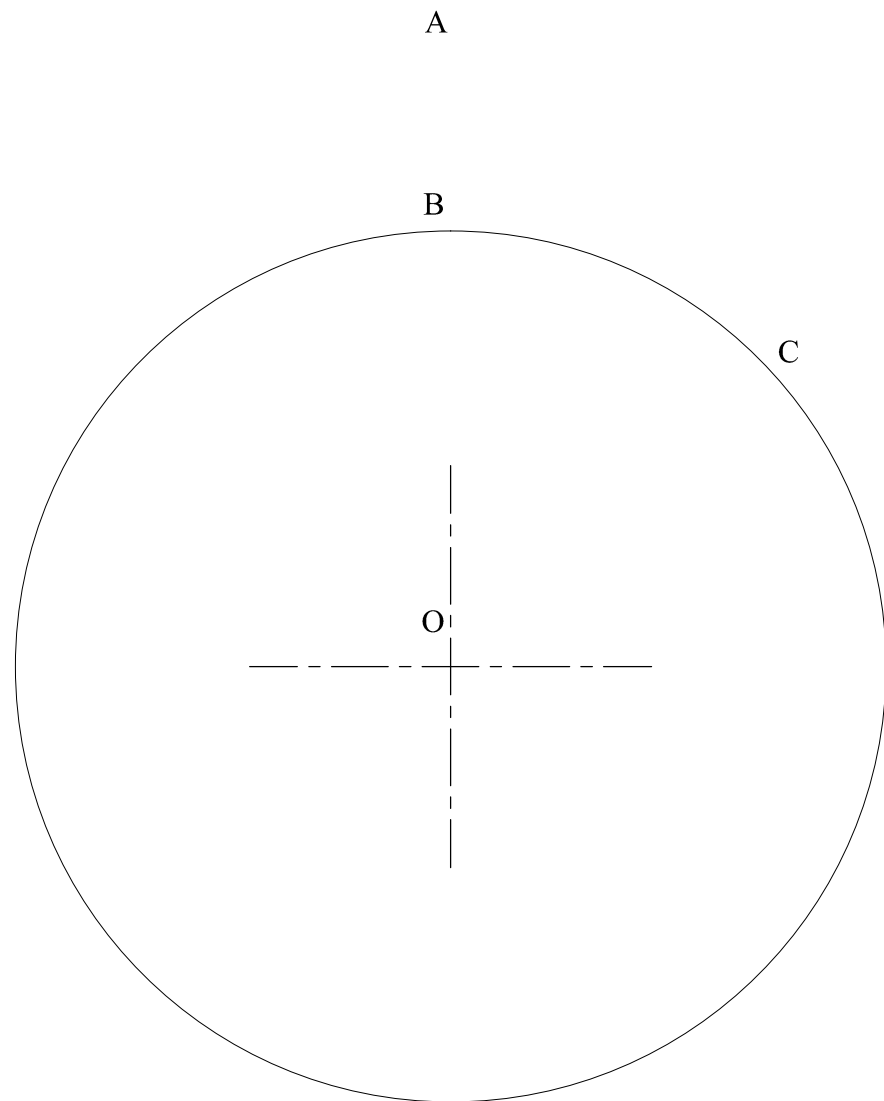
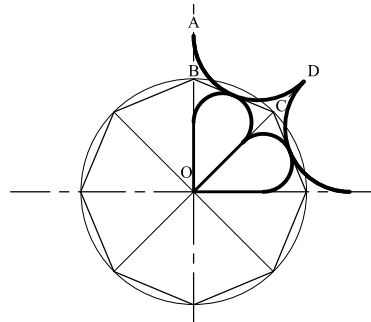


Figure (a)



Final required design
Figure (b)

D

Question 4.

A **casting** of an elbow fitting for an industrial kitchen is shown on the right.

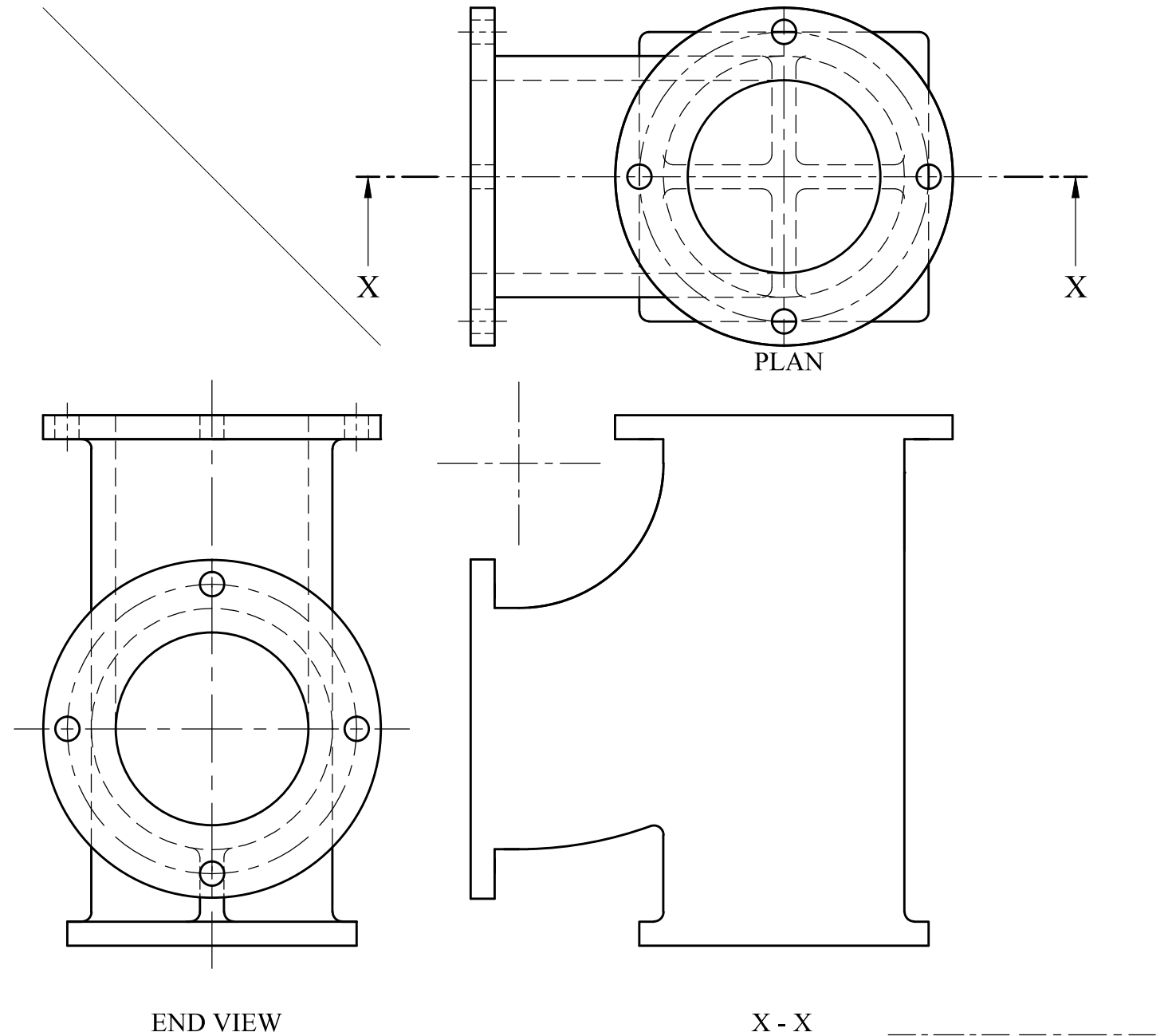
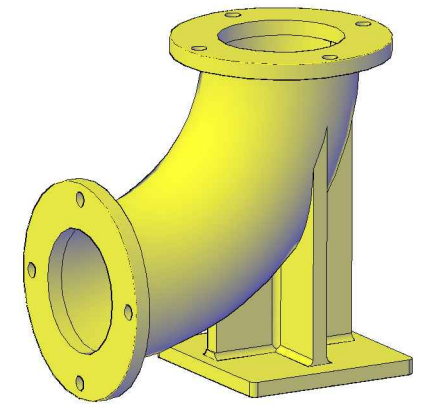
A plan view, an end view and an incomplete sectional front view are given below.

You are requested to:

- Complete section X-X.
- Draw the symbol of the projection used.

Note: Hidden detail is not required.

(15 marks)



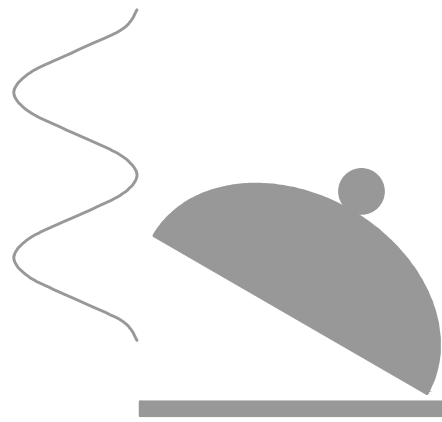
PROJECTION SYMBOL

Question 5.

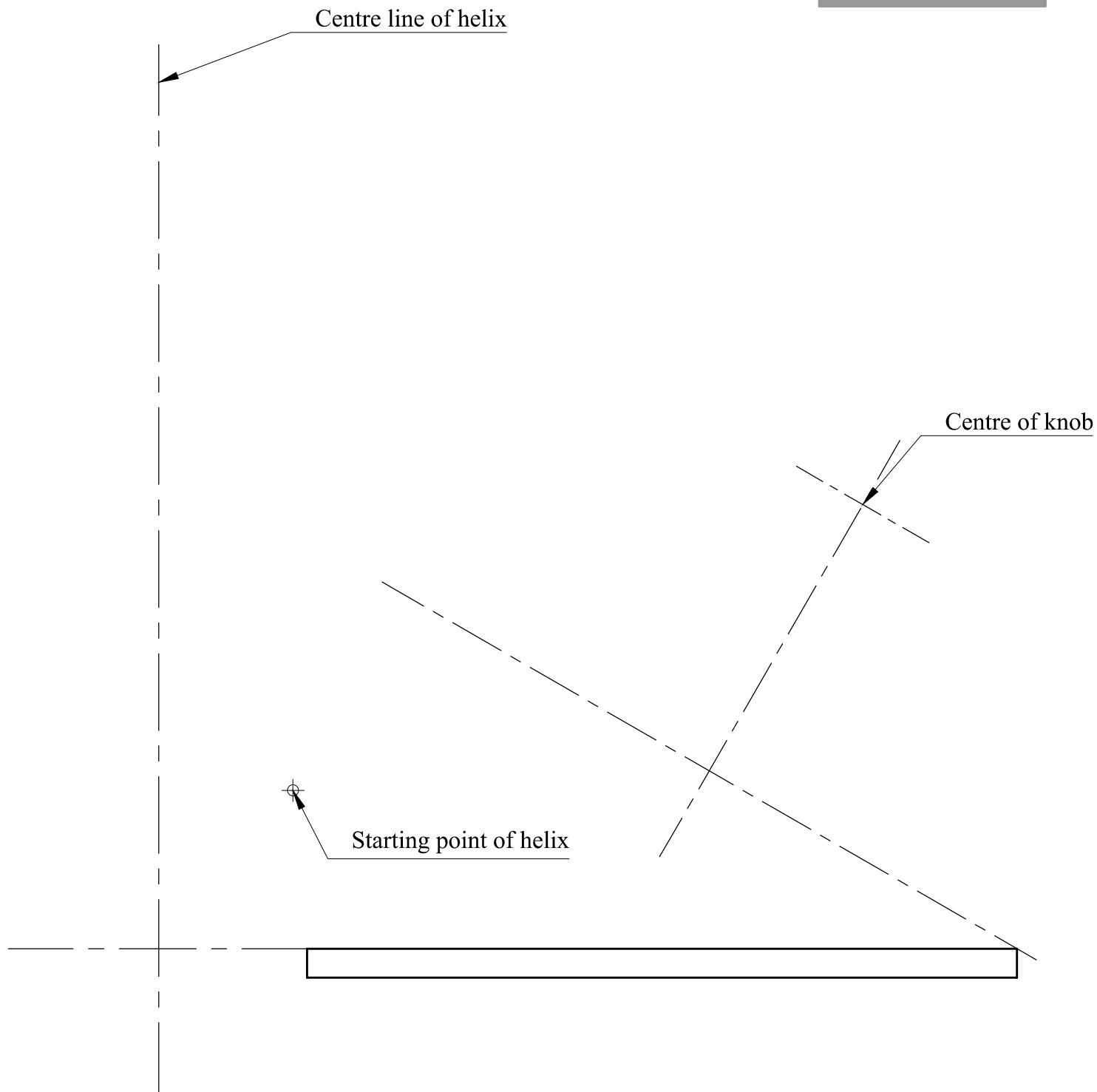
The logo of a catering company is shown on the right. The design consists mainly of an inclined semi-elliptical catering dish and a helical wisp of smoke.

On the given start lines provided below:

- Construct a semi-ellipse having a major axis of 120mm and a minor axis of 90mm and draw the knob touching the top.
- Construct two turns of a left-hand helix having a diameter of 48mm and a pitch of 60mm.



(14 marks)



Question 6.

Three orthographic views of a wooden model of a toaster are given below.

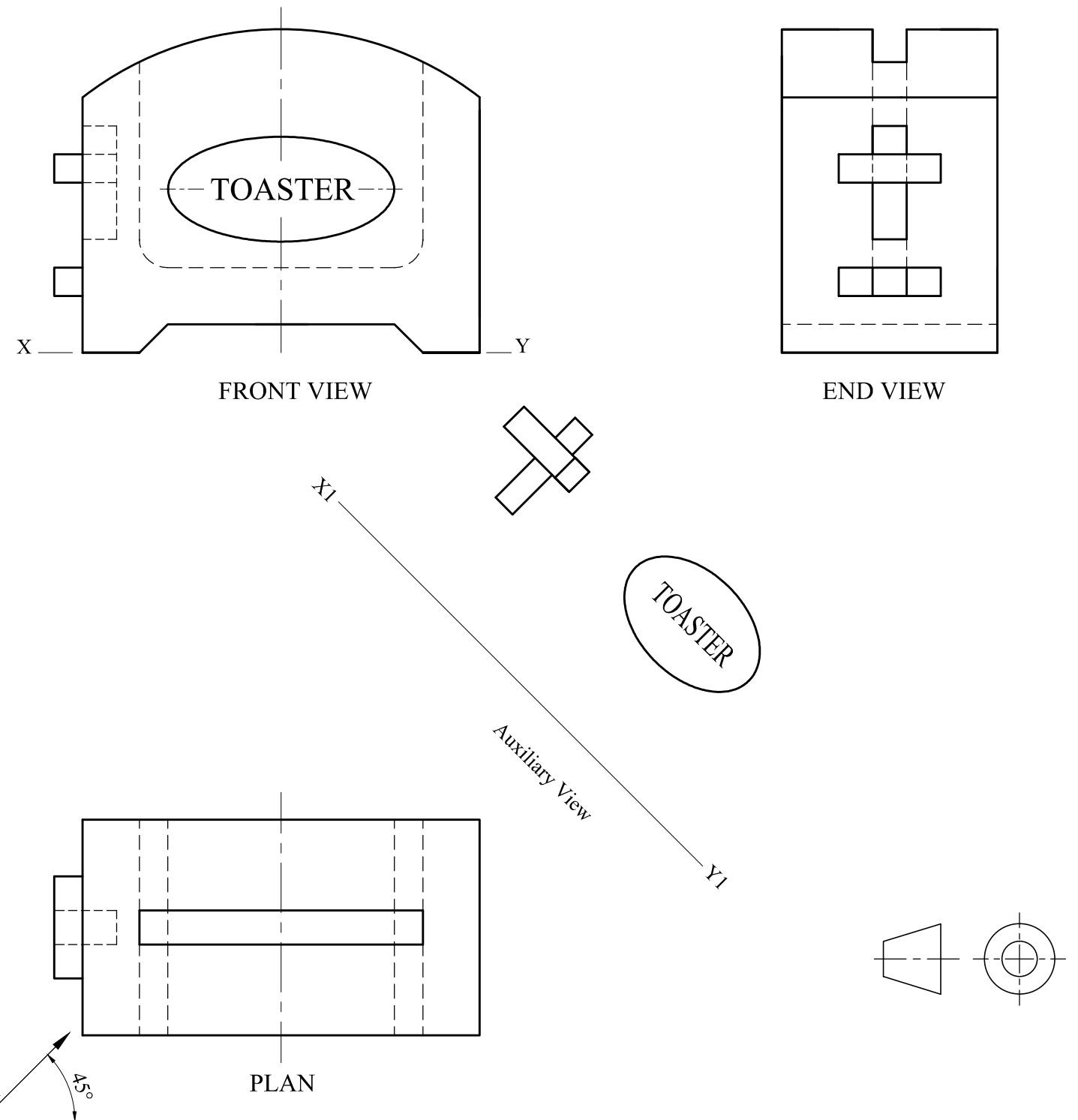
a. In the space indicated on the right, draw a 3-D freehand sketch of the model.

b. Project an **Auxiliary View** of the toaster as seen from the direction of arrow X.

Notes:

- Leave all construction lines visible.
- Parts of the solution are given.

(14 marks)



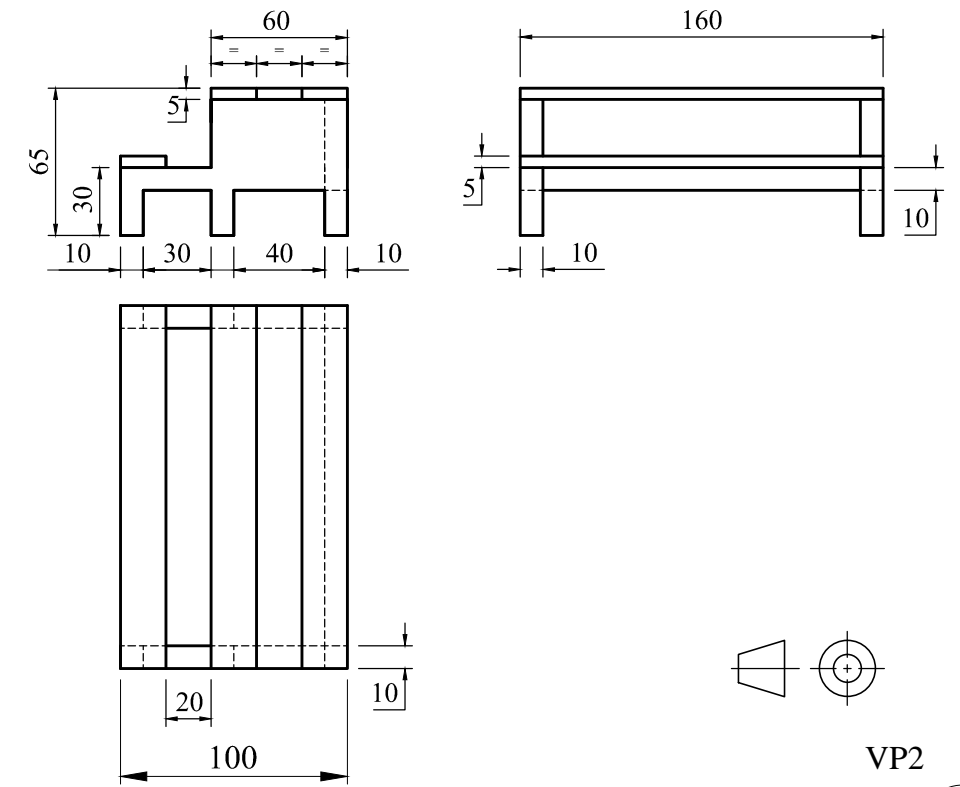
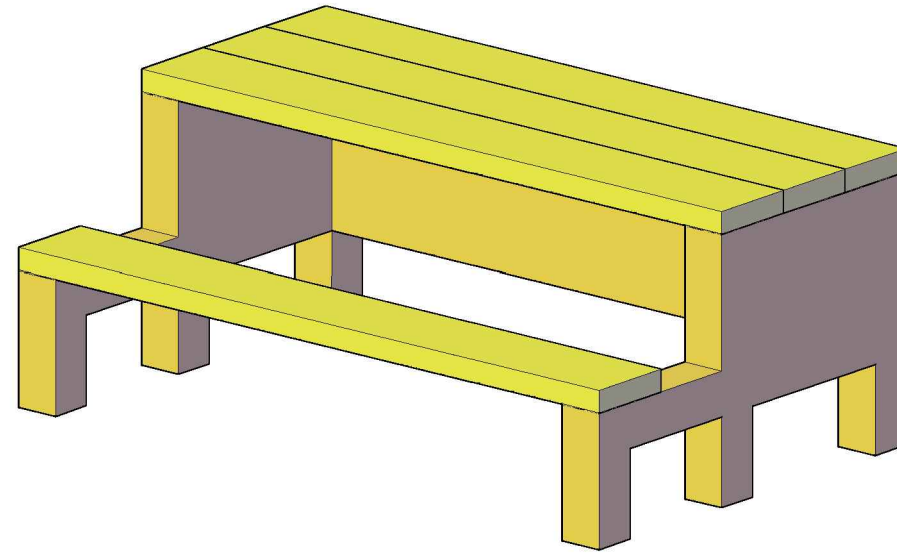
Question 7.

A 3-D view and three orthographic views of a proposed design of a garden bench/table are shown on the right.

Using the given dimensions and on the given start lines, project an estimated 2-point perspective drawing of the proposed design.

Note: Leave all constructions visible.

(15 marks)



VP1



VP2

