The Shirpur Education Society's

R. C. Patel College of Engineering and Polytechnic, Shirpur

Department of Mechanical Engineering

NAME OF COURSE: - Production Drawing

CODE OF COURSE: - 313311

SEMESTER: - ME-3K (SYME)

Unit - 1 Auxiliary View

8 Marks

SUBJECT TEACHER

Mr. Anil S. Patil

Production Drawing_PDR_(313311)

Unit 1 _ Auxiliary View

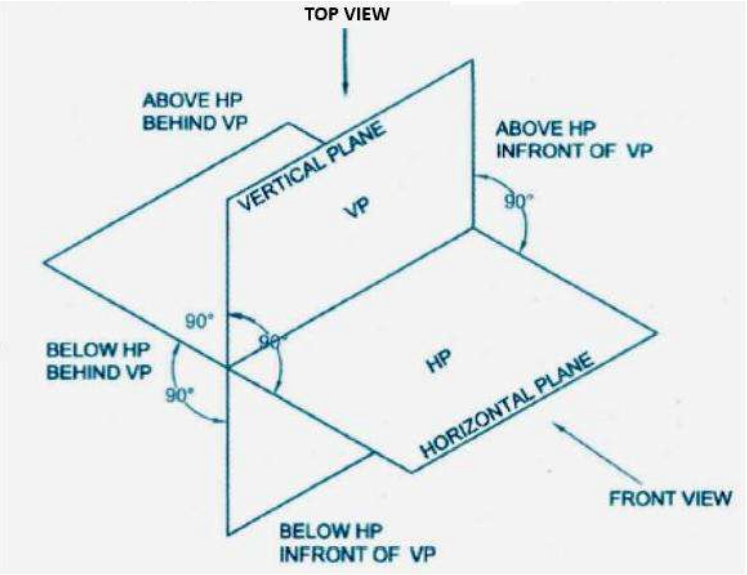
Horizontal Plane (HP) and Vertical Plane (VP) are the principle reference planes in engineering graphics. They used to draw 2D views (FV, TV and SV) from a 3D object / Isometric view.

HP is used to draw Top View (TV) and VP is used to draw Front View (FV).

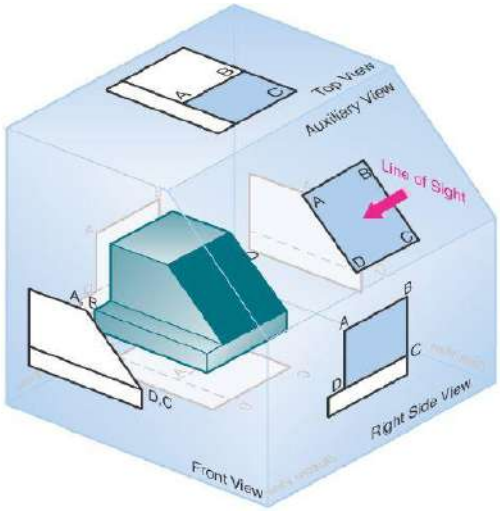
In some objects FV and TV cannot interpret all possible dimensions, due to inclined surfaces.

True shape and size of such an inclines surface cannot be interpreted.

To solve this issue, **auxiliary planes** are introduced.

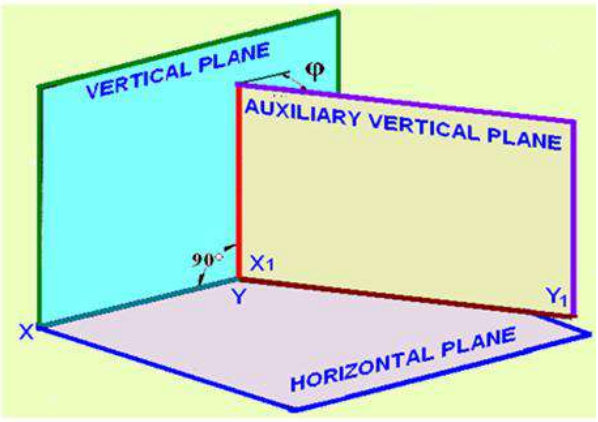


Auxiliary plane is a plane used to get the **true size and shape** of an object, whose surface inclined to VP or HP. Auxiliary view is a view drawn on an auxiliary plane.

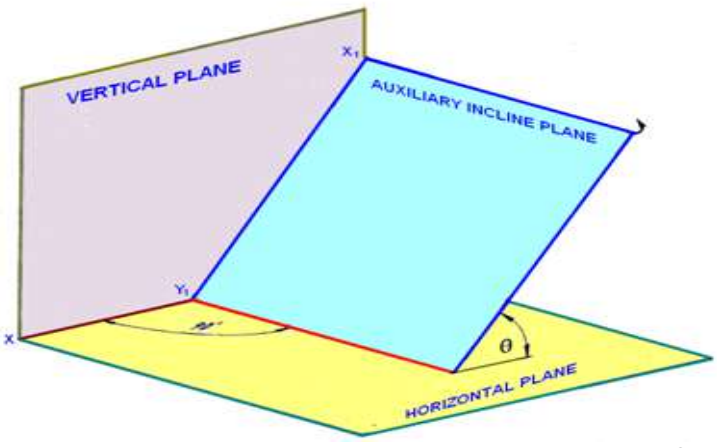


Types of auxiliary planes_

i. AVP (Auxiliary vertical plane) - Inclined to VP.



ii . AIP (Auxilliary inclined plane) - Inclined with HP.



Case 1 - Auxiliary view from orthographic projections

Step by step procedure to draw an auxiliary view from orthographic projections- (Consider 1st angle projection method)

1. Draw a horizontal line / Vertical line (XY) on a sheet which separates the front view and top view from each other.
2. Complete given views from orthographic projections as it is.
3. Search for inclined surface from given orthographic projections.
4. Draw a line parallel to the inclined surface at sufficient distance. Name it as X_1Y_1.
5. Draw perpendicular projection lines from every important point of the inclined surface such as edges, corners, intersection points, center line, etc.

   Important Note:

   i. If a circle is present on the inclined surface, first divide the circle into 12 equal parts. Then draw projection lines from all divided points to draw auxiliary view.
   ii. Give naming to every point for easy transfer of distances.
6. Using compass take distances of every point one by one from XY line and then mark same point on auxiliary view by keeping compass at X_1Y_1 line (Mark point carefully on same projection line).
7. Give naming to marked point.
8. Join all points by proper sequence as mentioned in the orthographic view.

   Important Note:

   i. Draw projection of center line as center line, also if any hidden part is present then draw it as hidden/dash line.

Case 2 - Complete the partial view from the given auxiliary view

Step by step procedure to draw Complete the partial view from the given auxiliary view (Consider 1st angle projection method)

1. Complete given views from orthographic projections as it is.

   Important Note:

   i. In these problems either FV or TV is given as incomplete with auxiliary view.

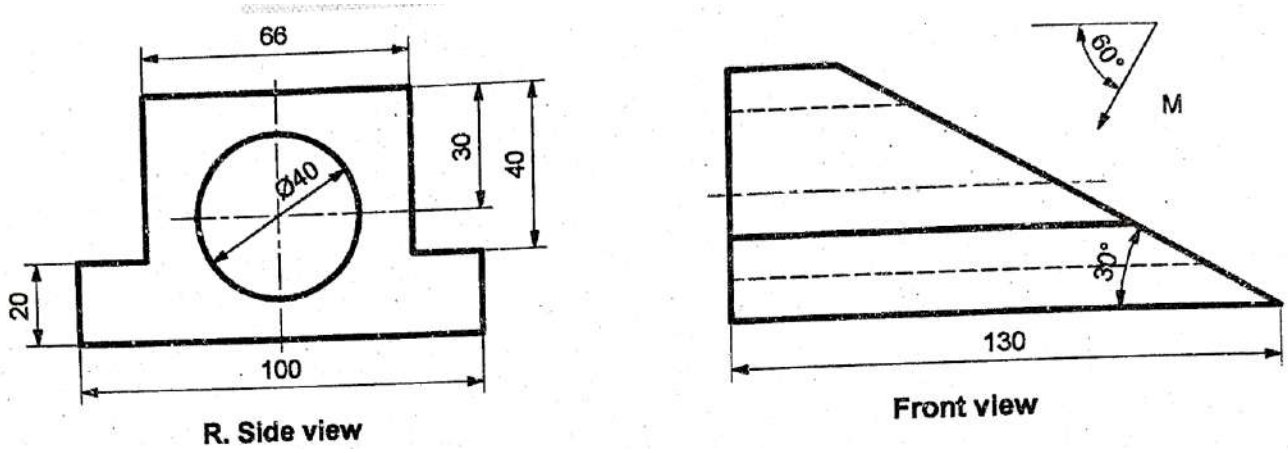
2. Draw projections from an auxiliary view towards the inclined surface. All projections must be perpendicular to the inclined surface.
3. These projection lines intersect on either FV or TV, mark and name these points.
4. Take all projections from the points we get in previous step towards th incomplete view.
5. Now using compass take distance of every point from X_1Y_1 line.
6. Mark same point on incomplete view by keeping compass on XY line.
7. Name every point just after the marking.
8. Join all points by proper sequence as mentioned in auxiliary view.

   Important Note:

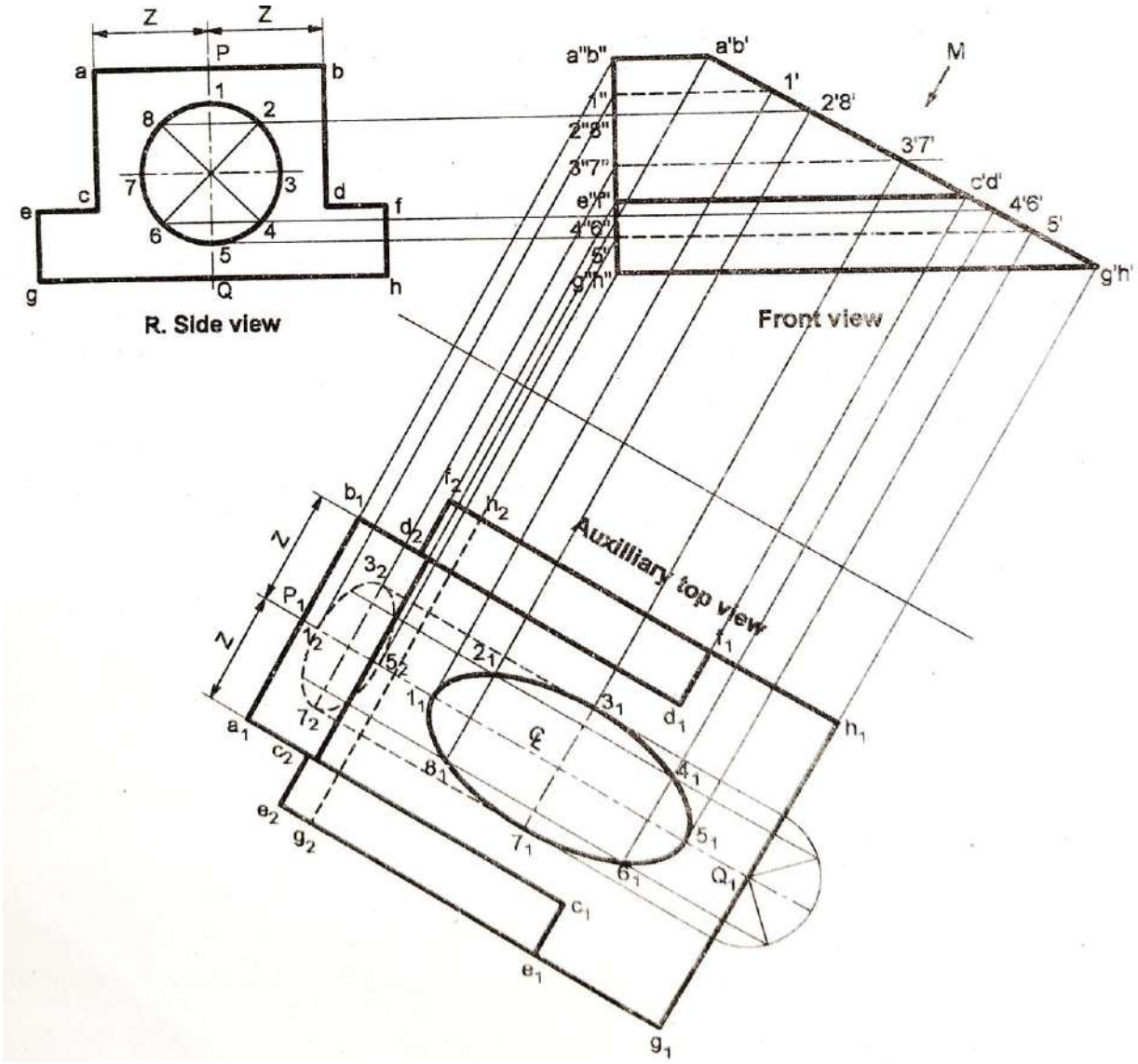
   i. Draw projection of center line as center line, also if any hidden part is present then draw it as hidden/dash line.

Some Examples on Case 1 with solution

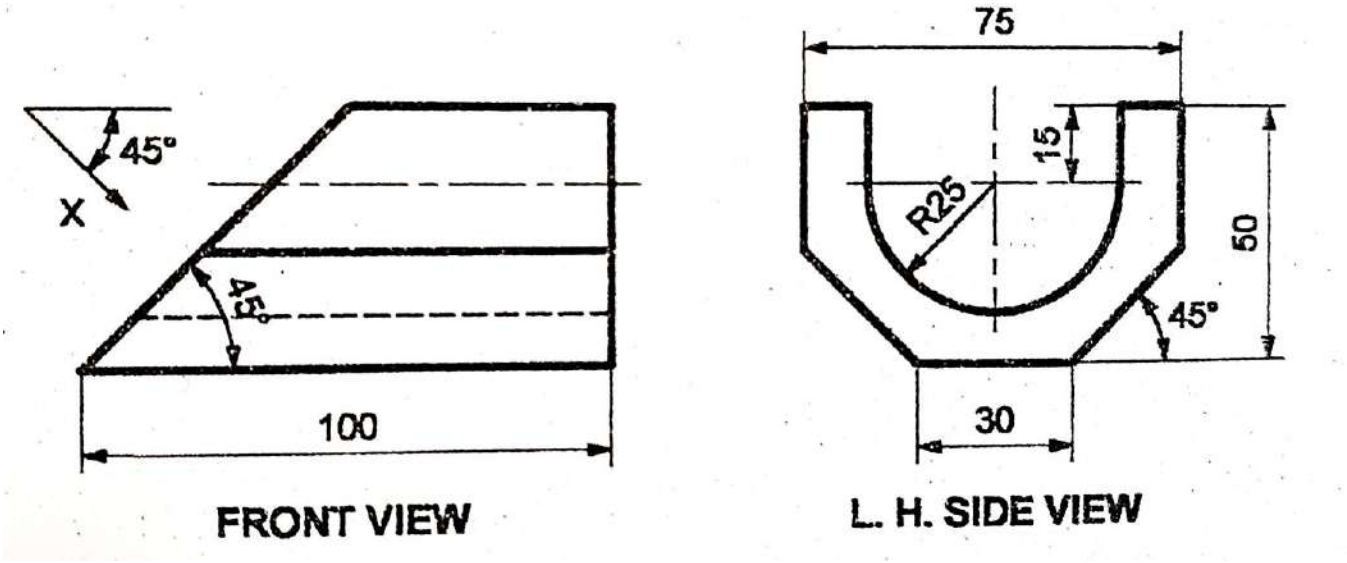
Q1. Fig shows the FV and RHSV of a block. Draw the given views and project an auxiliary view in the direction of arrow M.



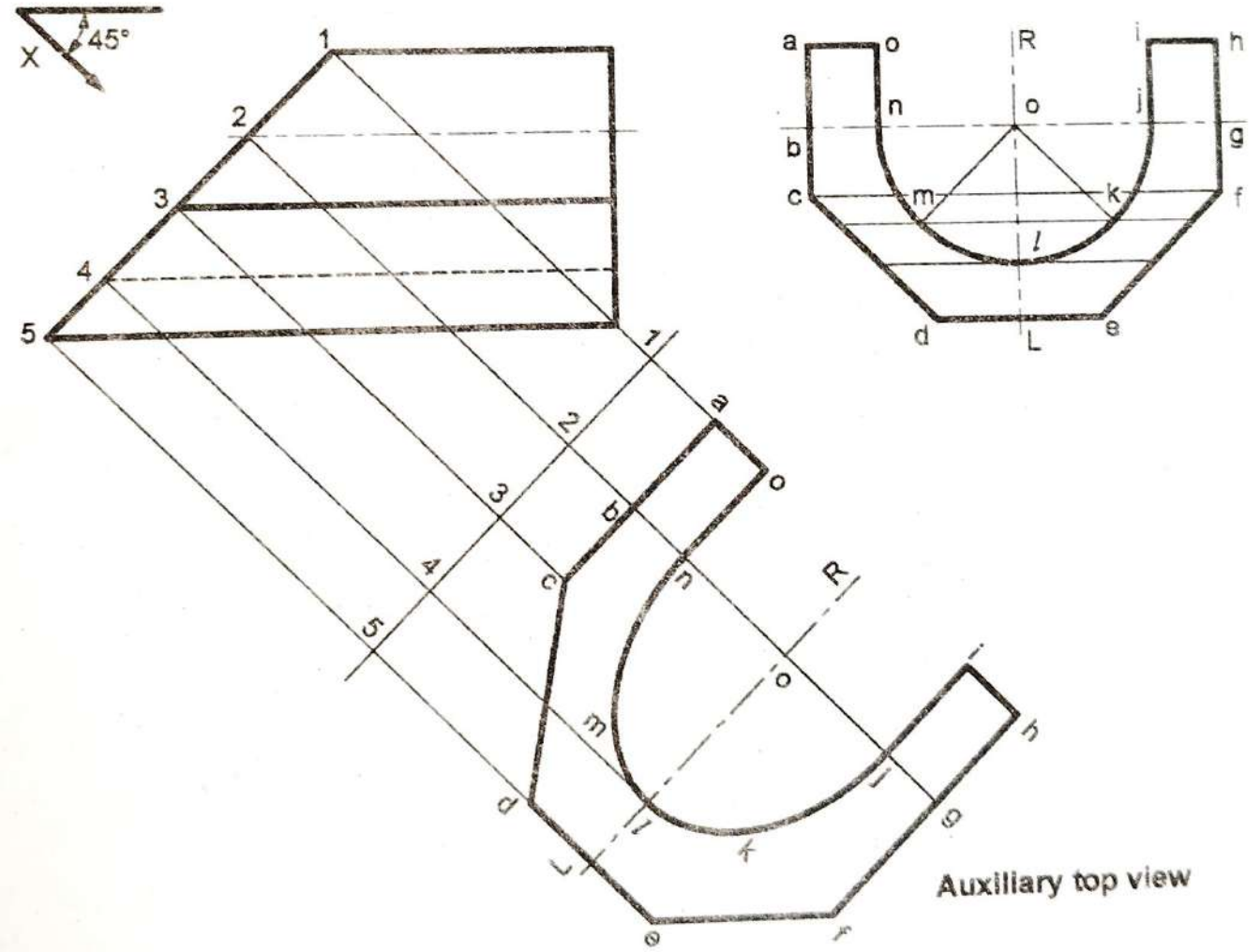
Solution



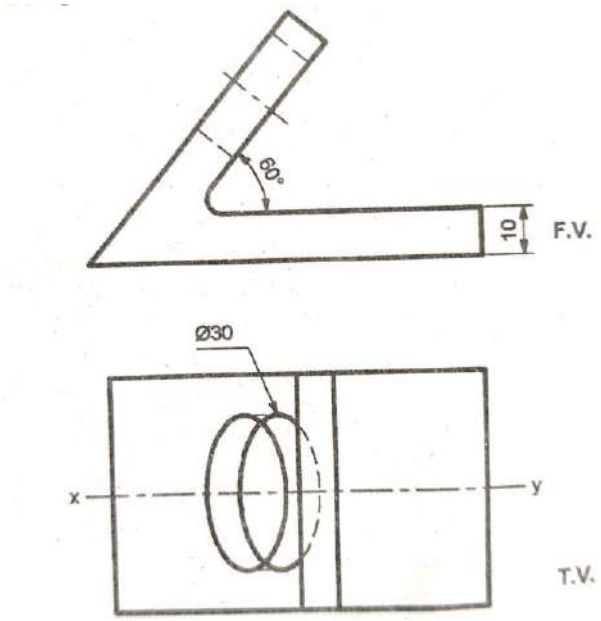
Q2. Fig shows the FV and LHSV of an object. Draw the given views and project an auxiliary top view looking in the direction of X.



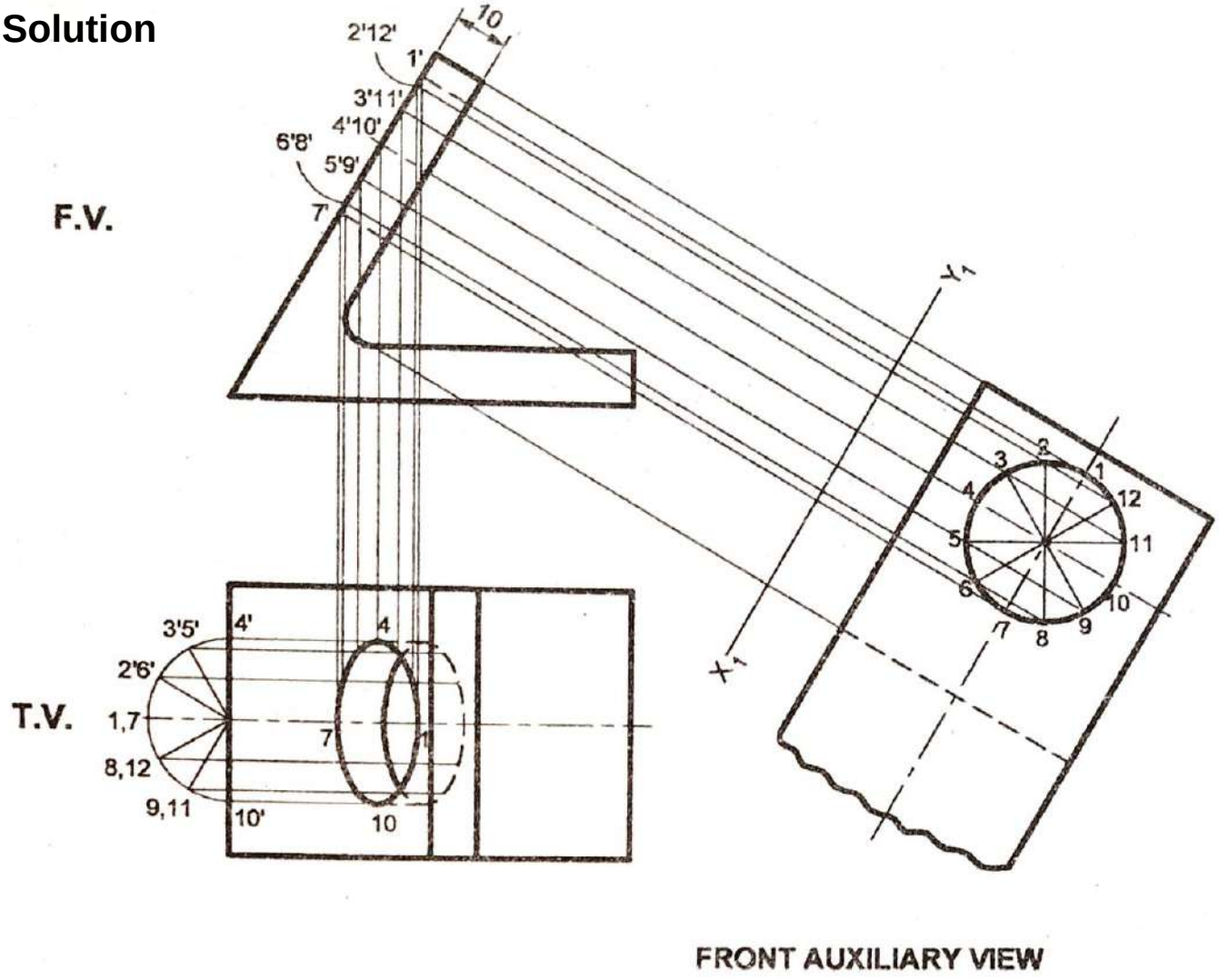
Solution



Q3. Fig shows an angle plate 10mm thick, 60^0 angle having circular hole of 30mm diameter on an inclined surface as shown. Using first angle projection method, draw its front auxiliary view.



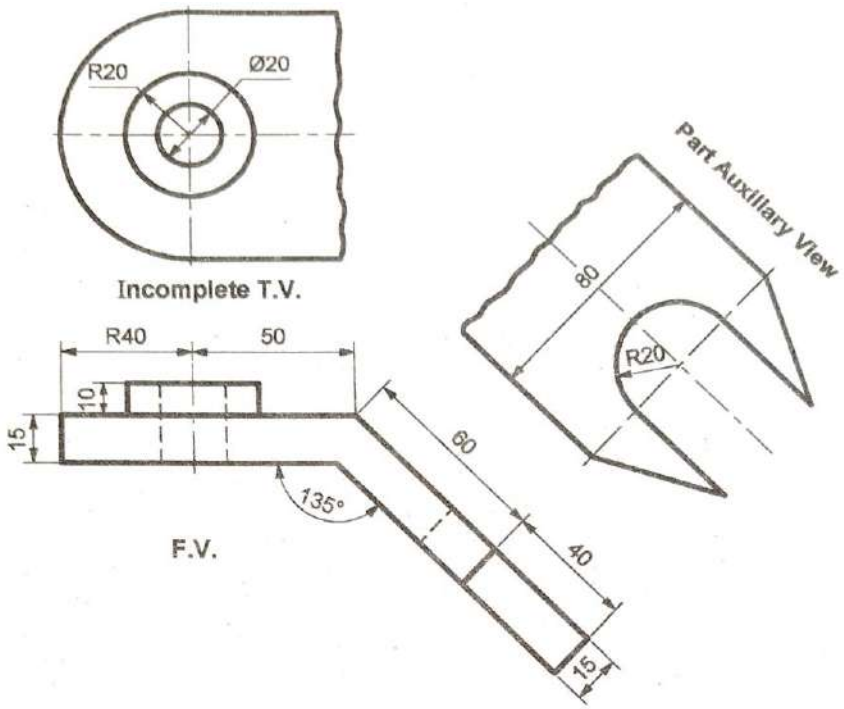
Solution



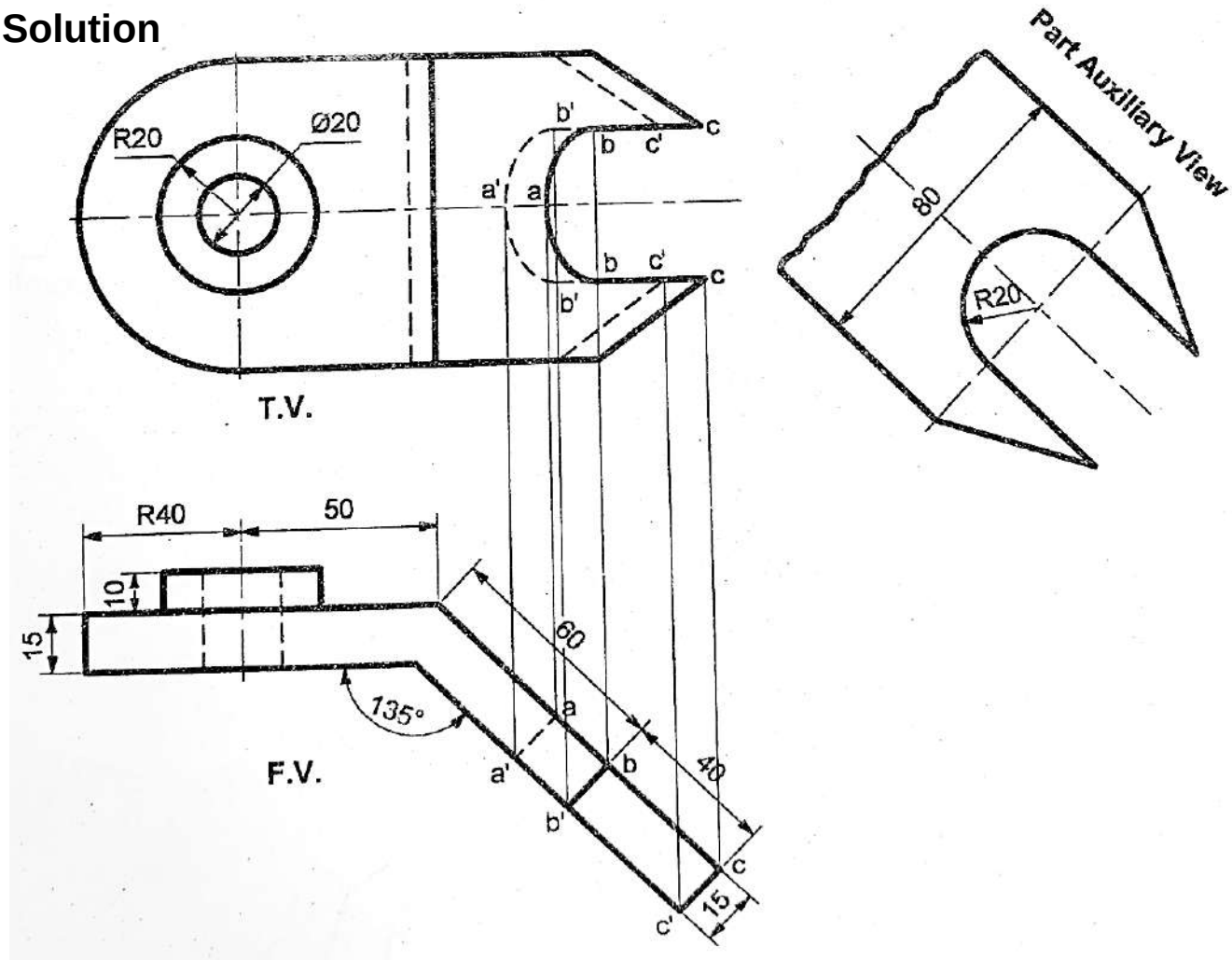
FRONT AUXILIARY VIEW

Some Examples on Case 2 with solution

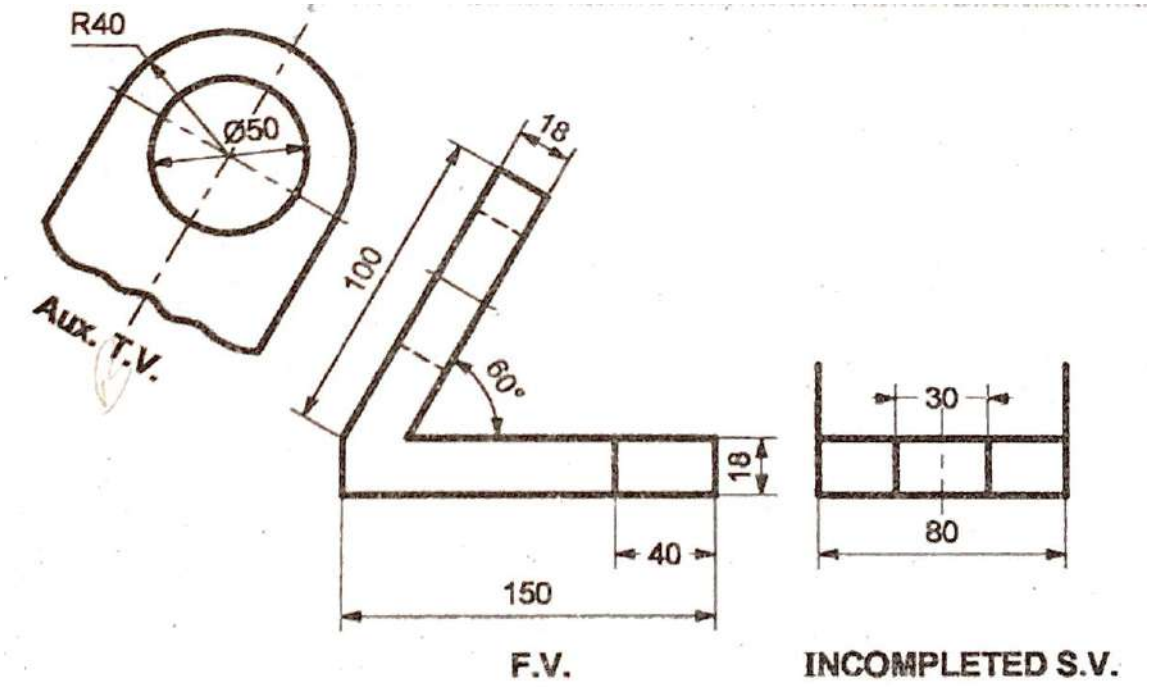
Q1. Fig shows partial auxiliary view and incomplete top view of an object, complete the top view



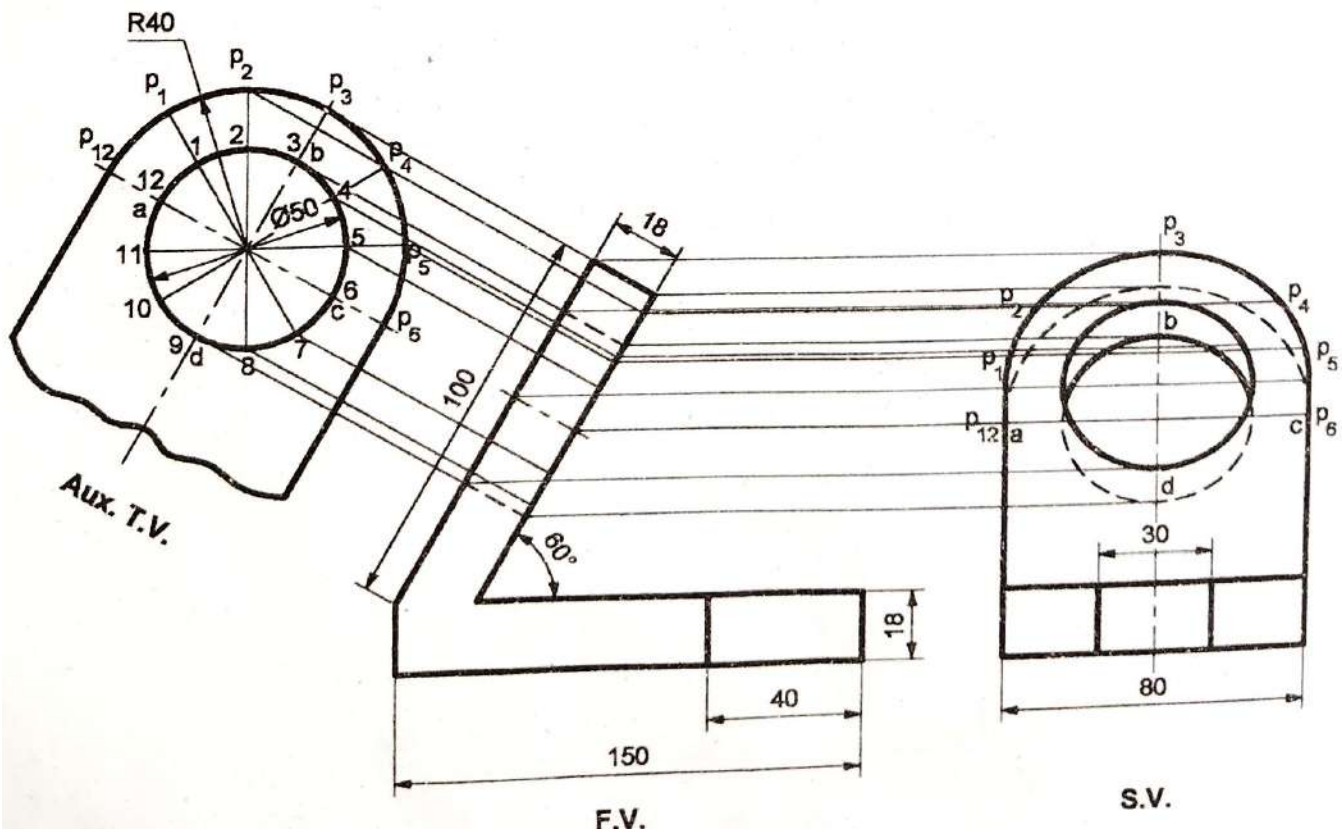
Solution



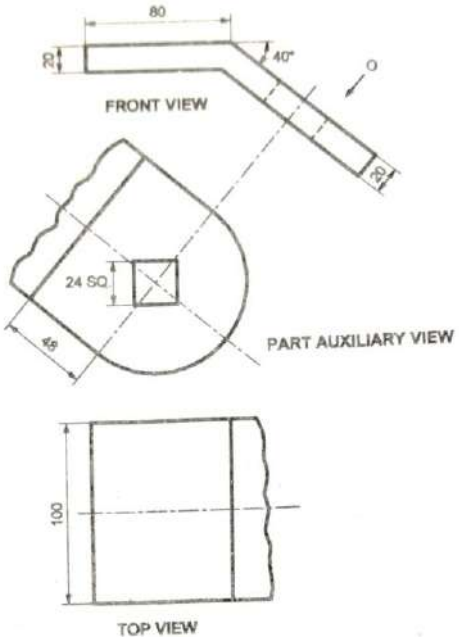
Q2. Fig shows front view, auxiliary top view and incomplete side view. Complete the side view



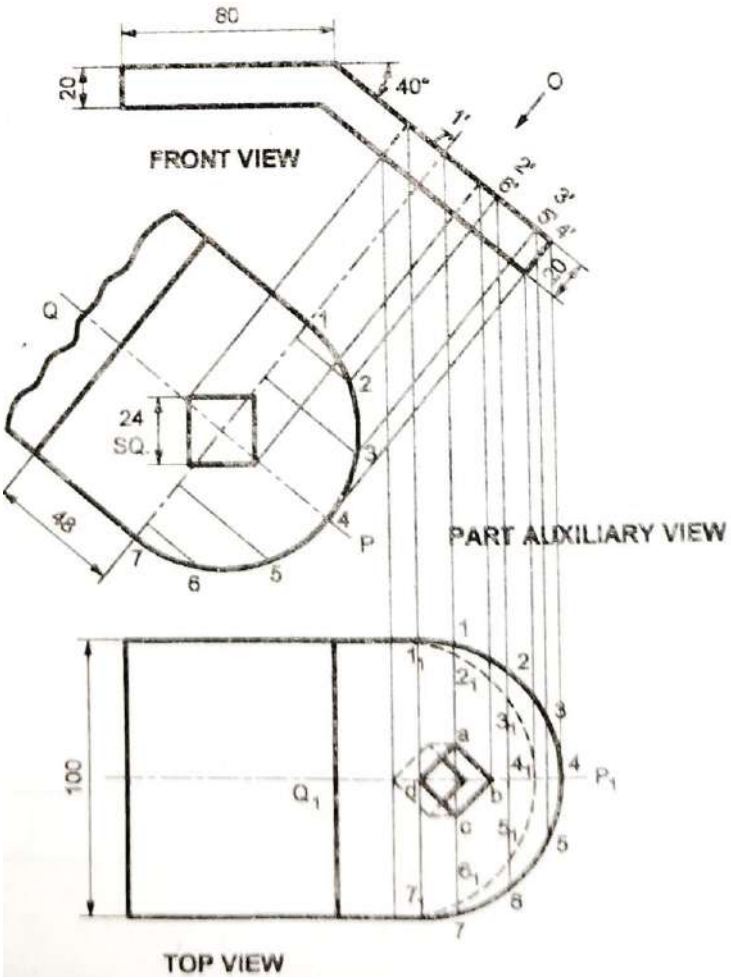
Solution



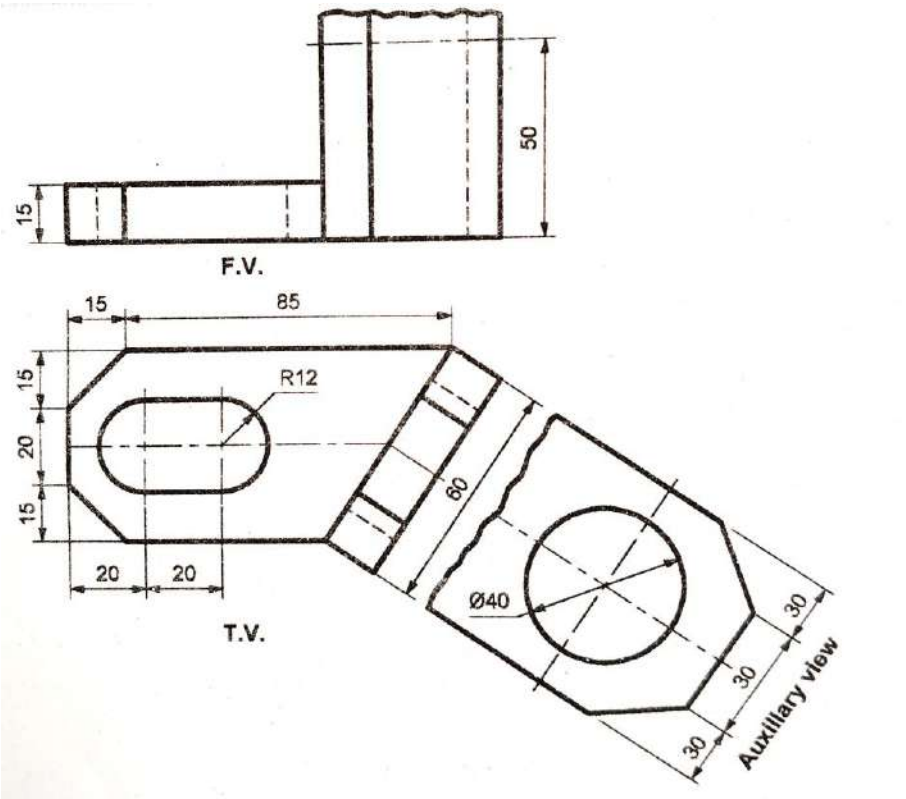
Q3. Fig shows partial top view, front view and partial auxiliary view, draw the given views and complete the top view.



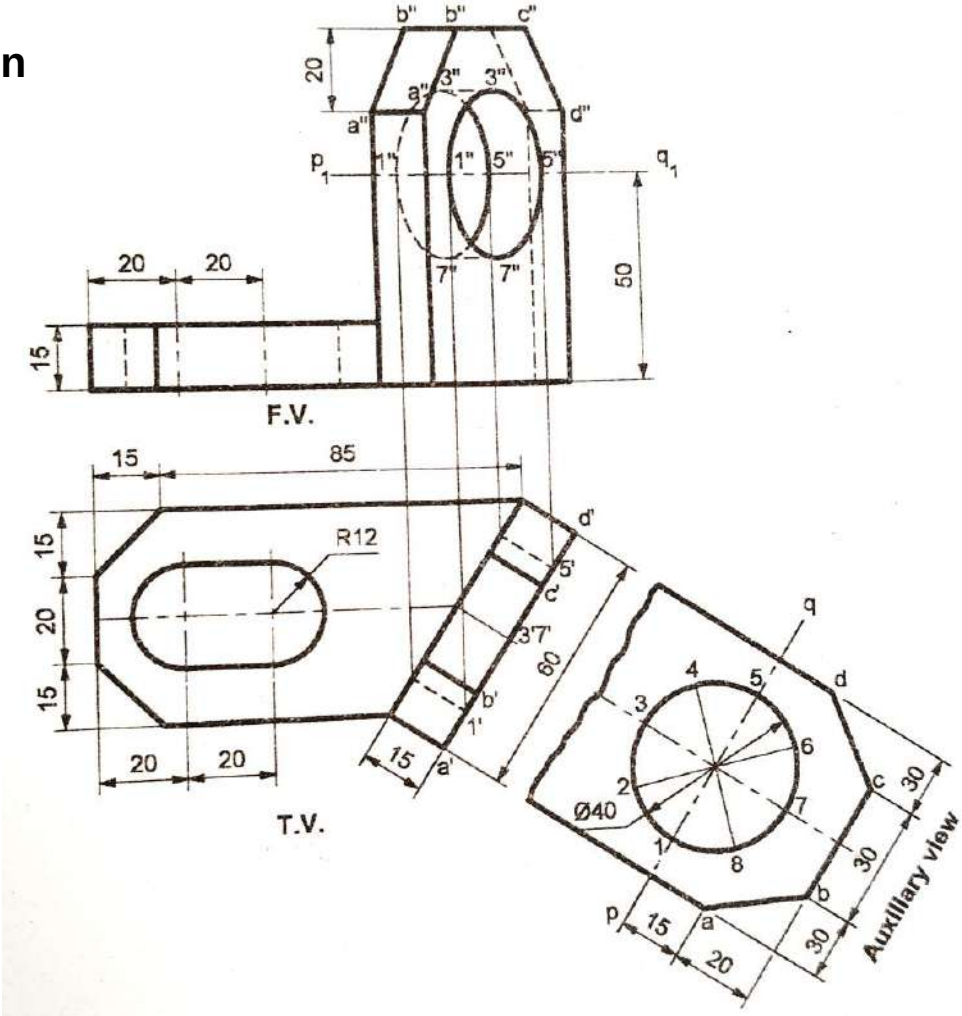
Solution



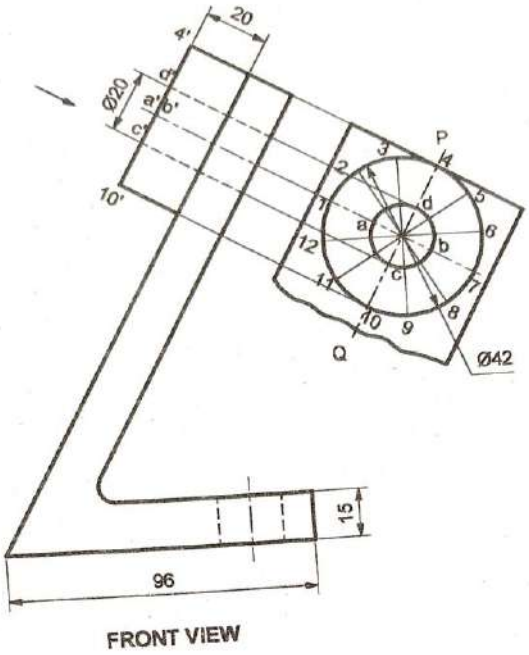
Q4. Fig shows top view, incomplete front view and partial auxiliary view of bracket. Draw the top view and complete the front view showing all details.



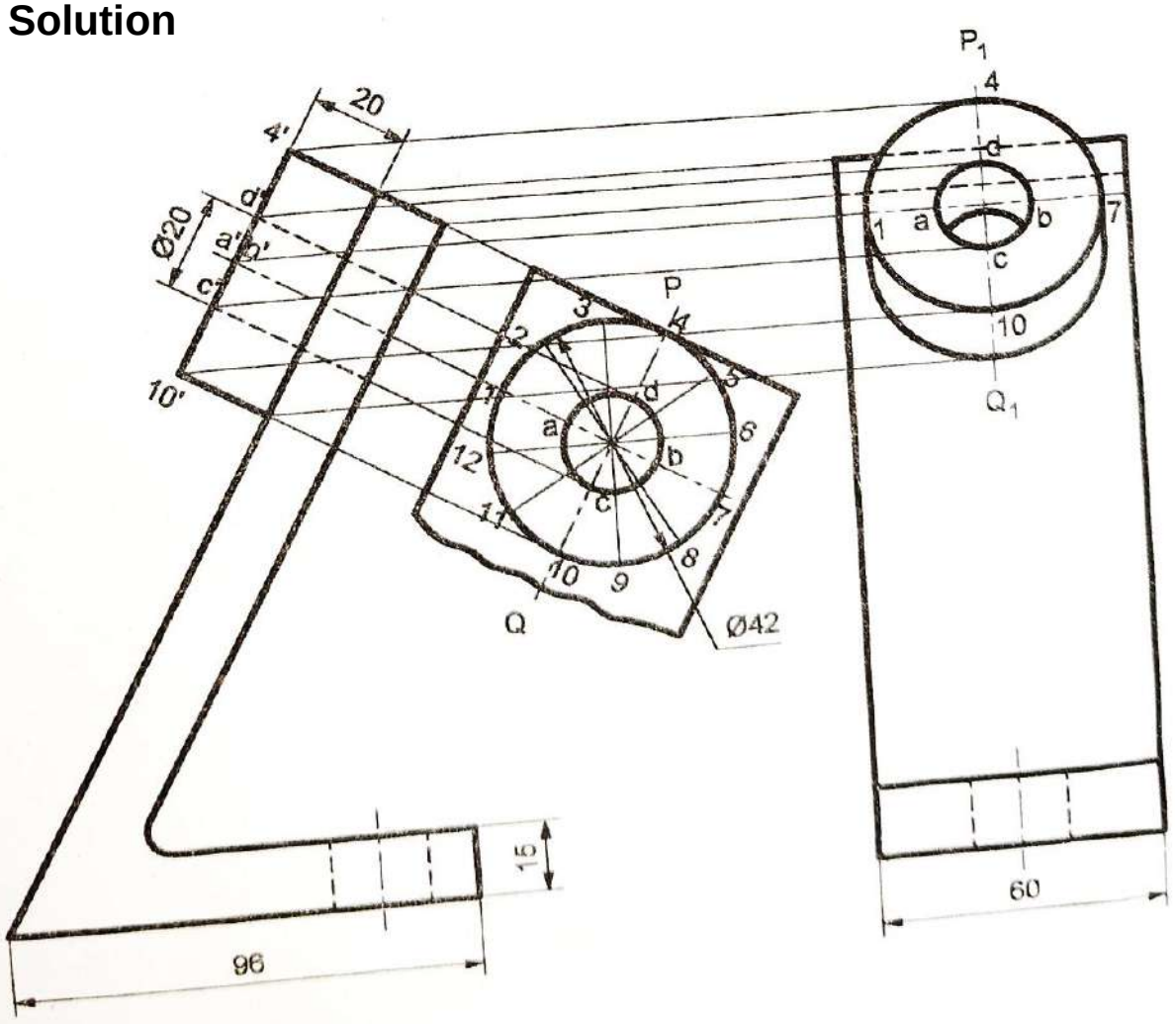
Solution



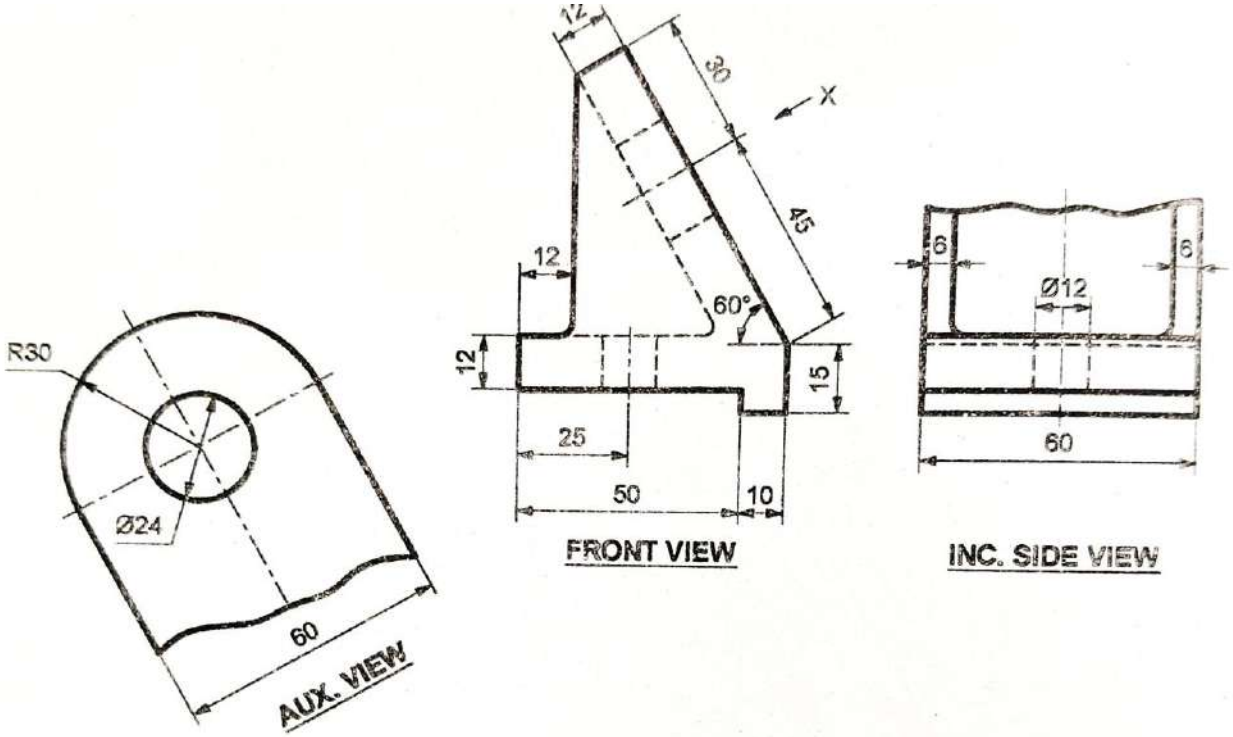
Q5. Fig shows front and partial auxiliary views of a machine component. Draw the left hand side view.



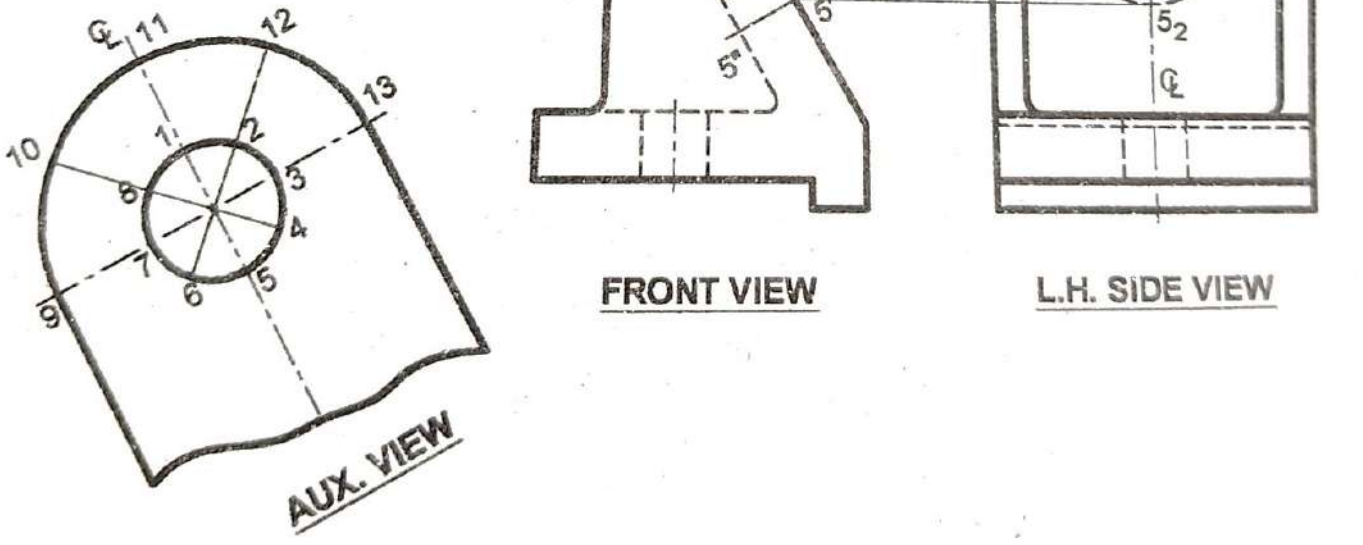
Solution



Q6. Fig shows the front view, auxiliary view and incomplete side view of a machine part. Draw the given views and incomplete side view.



Solution



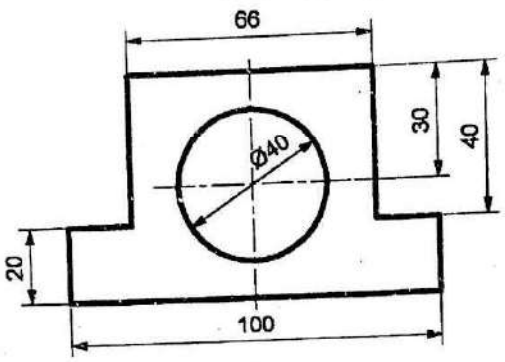
QUESTION BANK

Program Name: Mechanical Engineering Program Group	Program Code: ME
Course Title : Production Drawing (313311)	Semester: Third

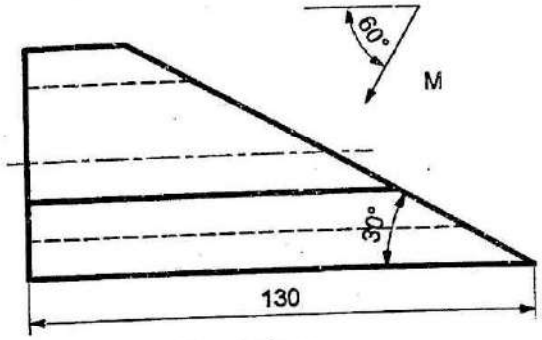
Unit 1: Auxiliary View

Q1. Fig shows the FV and RHSV of a block. Draw the given views and project an auxiliary view in the direction of arrow M.

W-25
CO01-TLO1.2-A



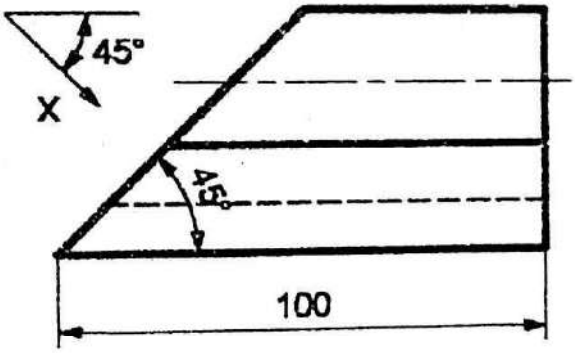
R. Side view



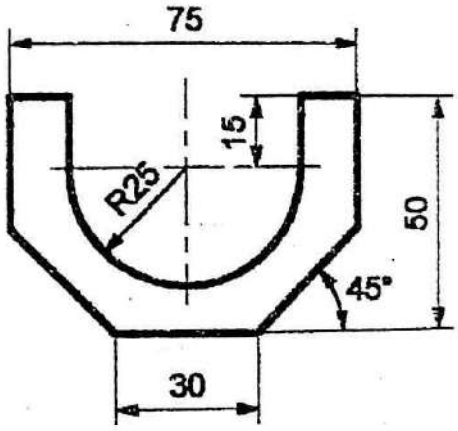
Front view

Q2. Fig shows the FV and LHSV of an object. Draw the given views and project an auxiliary top view looking in the direction of X.

S-25
CO01-TLO1.2-A



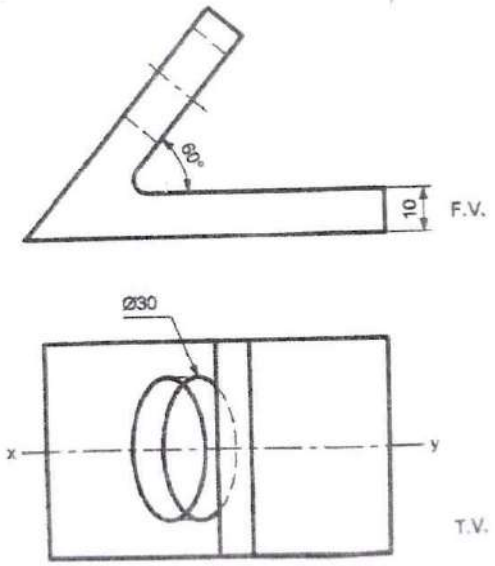
FRONT VIEW



L. H. SIDE VIEW

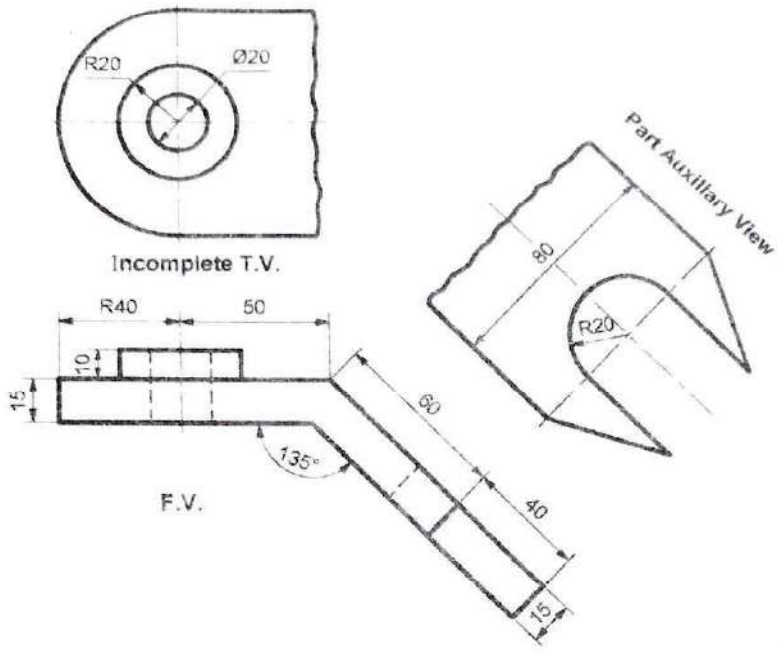
Q3. Fig shows an angle plate 10mm thick, 60^0 angle having circular hole of 30mm diameter on an inclined surface as shown. Using first angle projection method, draw its front auxiliary view.

CO01-TLO1.2-A



Q4.Fig shows partial auxiliary view and incomplete top view of an object, complete the top view

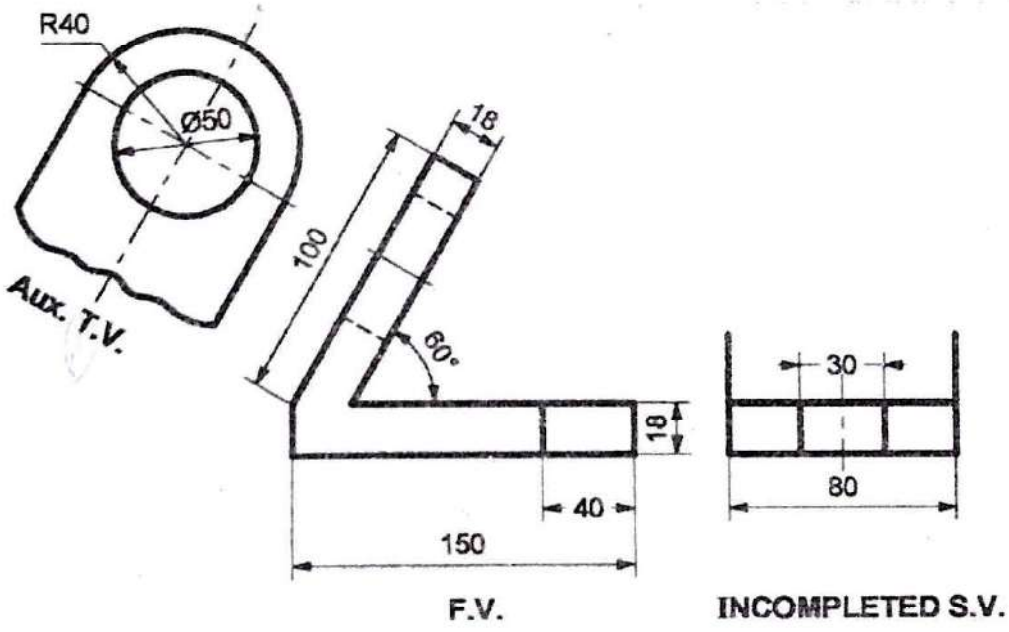
CO01-TLO1.3-A



Q5. Fig shows front view, auxiliary top view and incomplete side view. Complete the side view

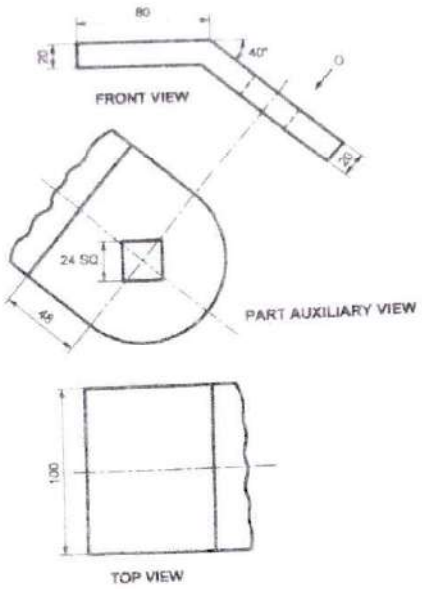
W-24

CO01-TLO1.3-A



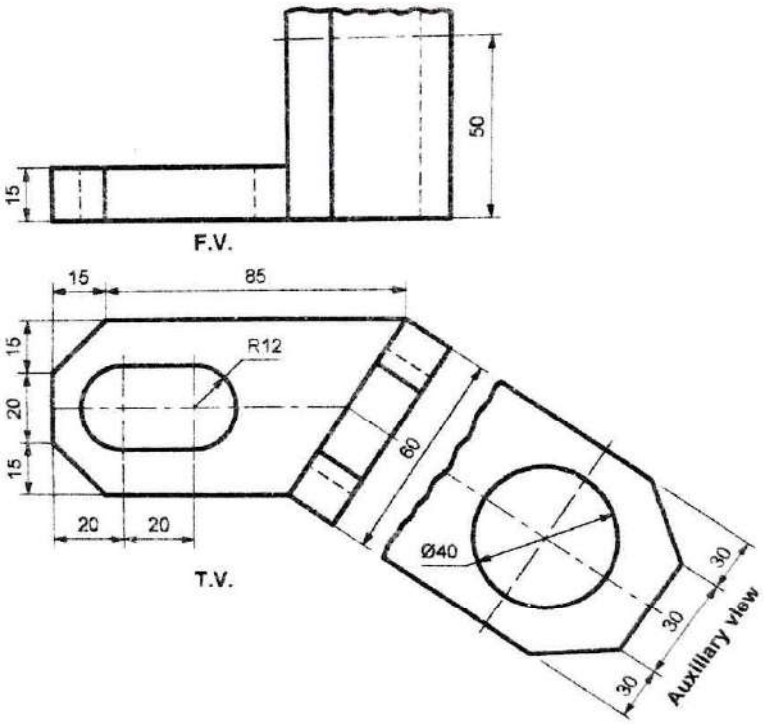
Q6. Fig shows partial top view, front view and partial auxiliary view, draw the given views and complete the top view.

CO01-TLO1.3-A



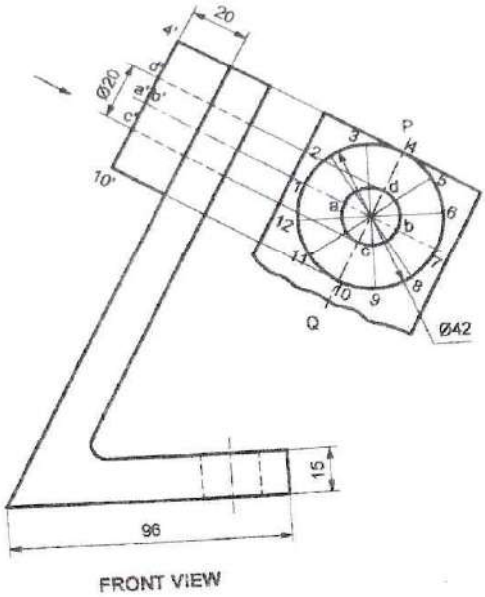
Q7. Fig showstop view, incomplete front view and partial auxiliary view of bracket.Draw the top view and complete the front view showing all details. W-25, W-24

CO01-TLO1.3-A



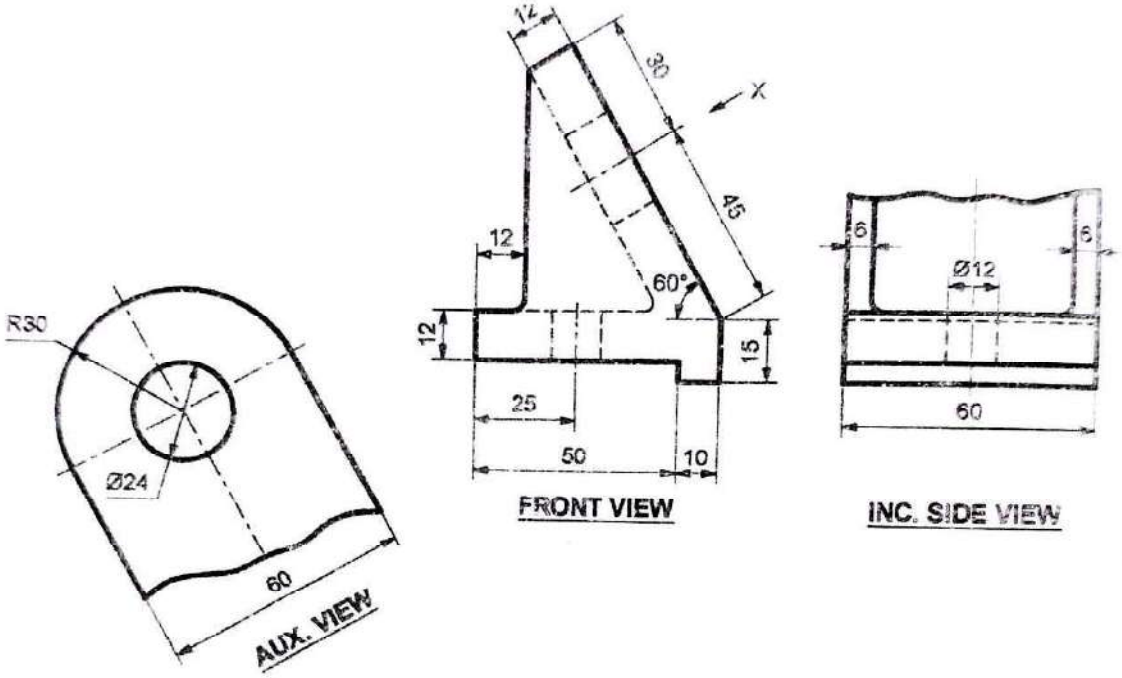
Q8. Fig shows frontand partial auxiliary views of a machine component. Draw the left hand side view.

CO01-TLO1.3-A



Q9. Fig shows the front view, auxiliary view and incomplete side view of a machine part. Draw the given views and incomplete side view.

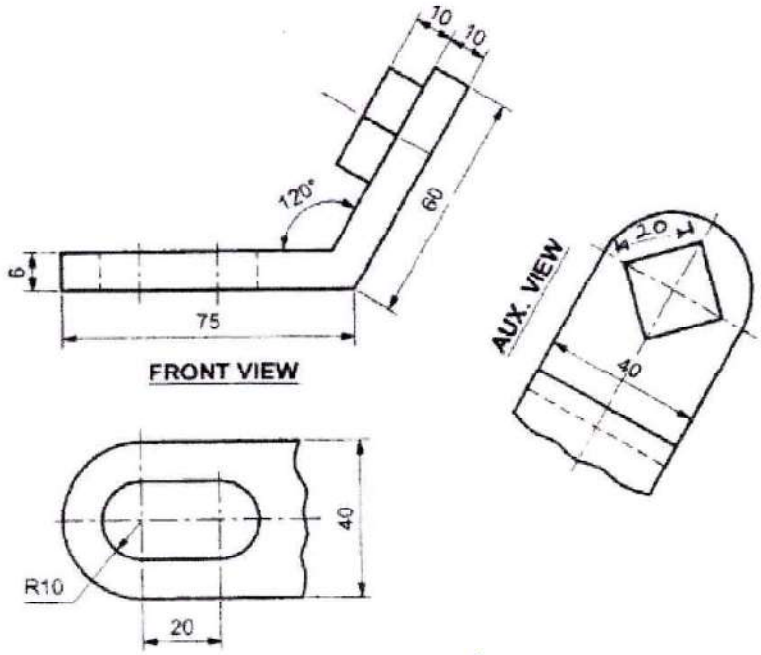
CO01-TLO1.3-A



Q10. Fig shows the front view, incomplete top view & auxiliary view of an object. Redraw the front view and complete the top view.

S-25,W-25

CO01-TLO1.3-A



19/5/26

Mr A S Patil

19/05/2026

Mr. B S Patil