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15MT64

Sixth Semester B.E. Degree Examination, June 2018
(Mechatronics Engineering)
COMPUTER AIDED MACHINE DRAWING

Time: 3 Hours | Max. Marks: 80

Note: 1. Answer any ONE question from each of the parts A, B and C.
2. Use **First angle** projections only.
3. If any data is missing it may be suitably assumed and mentioned.
4. All the calculations should be on the answer sheet supplied.
5. All the dimensions are in mm.
6. Drawing instruments may or may not be used for sketching.
7. Part C assembly view should be in 3-D and other views in 2-D.

Part - A

1. A hexagonal pyramid sides of base 30mm and altitude 70mm is rests with its base on the HP and with a side of base parallel to the VP. It is cut by a VT, passing through one of the extreme base corner and the center of gravity of the pyramid. Draw the sectional top view and true shape of section. **(20 Marks)**

2. Draw (i) the view from the front, (ii) sectional view from above and (iii) the view from the right of a depth stop shown in Fig. 1. **(20 Marks)**

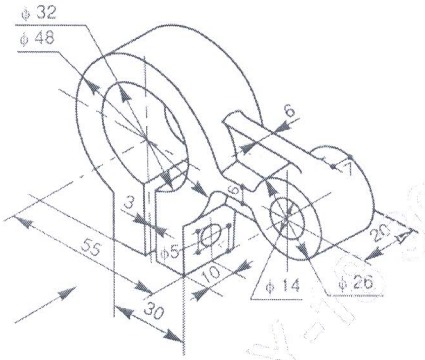

Fig. 1: Depth stop

Part – B

3. Draw the following view of a KNUCKLE JOINT used to joining two rods of diameter 25mm (a) Sectional front view (b) Top view. **(20 Marks)**

4. Draw sectional front view and side view of a Pin type flexible Coupling to connect two rods of diameter 20mm, indicate all dimensions. **(20 Marks)**

Part - C

5. Figure 2 shows the details of a Plummer block. Assemble the parts of the Plummer block and show the following views.
   a. Half sectional front view showing the right half in section
   b. Top view **(40 Marks)**

6. Figure 3 shows the details of a screw jack. Assemble the parts of the screw jack and show the following views.
   a. Half sectional front view showing the right half in section
   b. Top view **(40 Marks)**

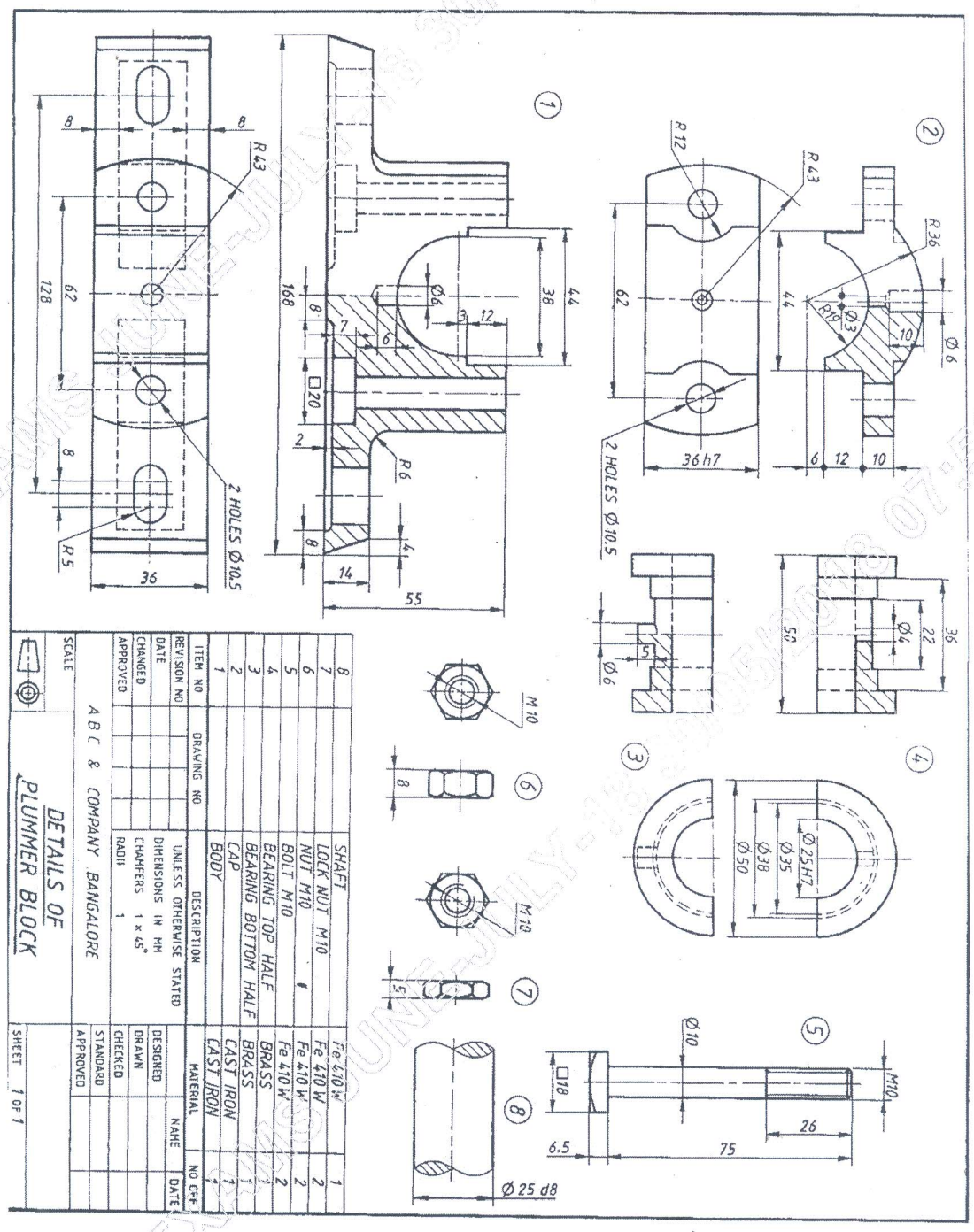

Figure 2:- Plummer Block

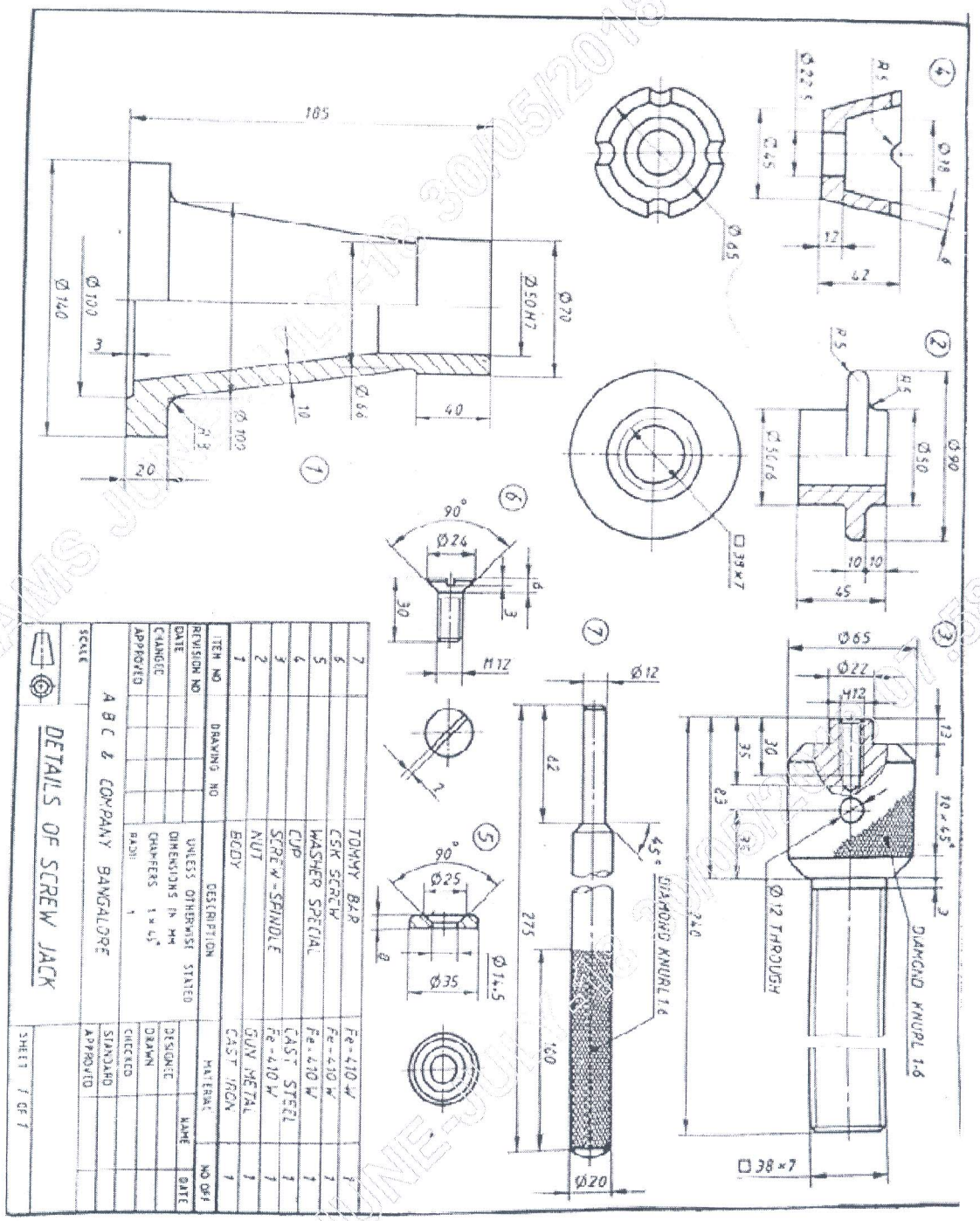

Figure 3:- Screw Jack

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6. Drawing instruments may or may not be used for sketching.
7. Part C assembly view should be in 3-D and other views in 2-D.

Part – A

1. A square pyramid of base side 45mm and axis length 70mm rests on its base on the HP in such way that all of its base edges are equally inclined to the VP. It is cut by a section plane perpendicular to the VP, inclined at 45° to the HP and bisecting the axis. Draw its sectional top view, sectional side view and true shape of section. **(20 Marks)**

2. Draw the two view of a square headed bolt and nut assembly for a diameter and length of bolt is 30mm and 100mm respectively. **(20 Marks)**

Part – B

3. Draw the following view of a SOCKET and SPIGOT COTTER JOINT used to joining two rods of diameter 20mm (a) Sectional front view (b) A view looking from socket end. **(20 Marks)**

4. Draw sectional front view and side view of a Protected Type Flange Coupling to connect two rods of diameter 20mm, indicate all dimensions. **(20 Marks)**

Part - C

5. Figure 1 shows the details of a screw jack. Assemble the parts of the screw jack and show the following views.
   a. Half sectional front view showing the right half in section
   b. Top view **(40 Marks)**

6. Figure 2 shows the part drawing of a tail stock. Assemble the tail stock and show the following views.
   a. Sectional front view showing the top spindle portion in section
   b. Left profile view **(40 Marks)**

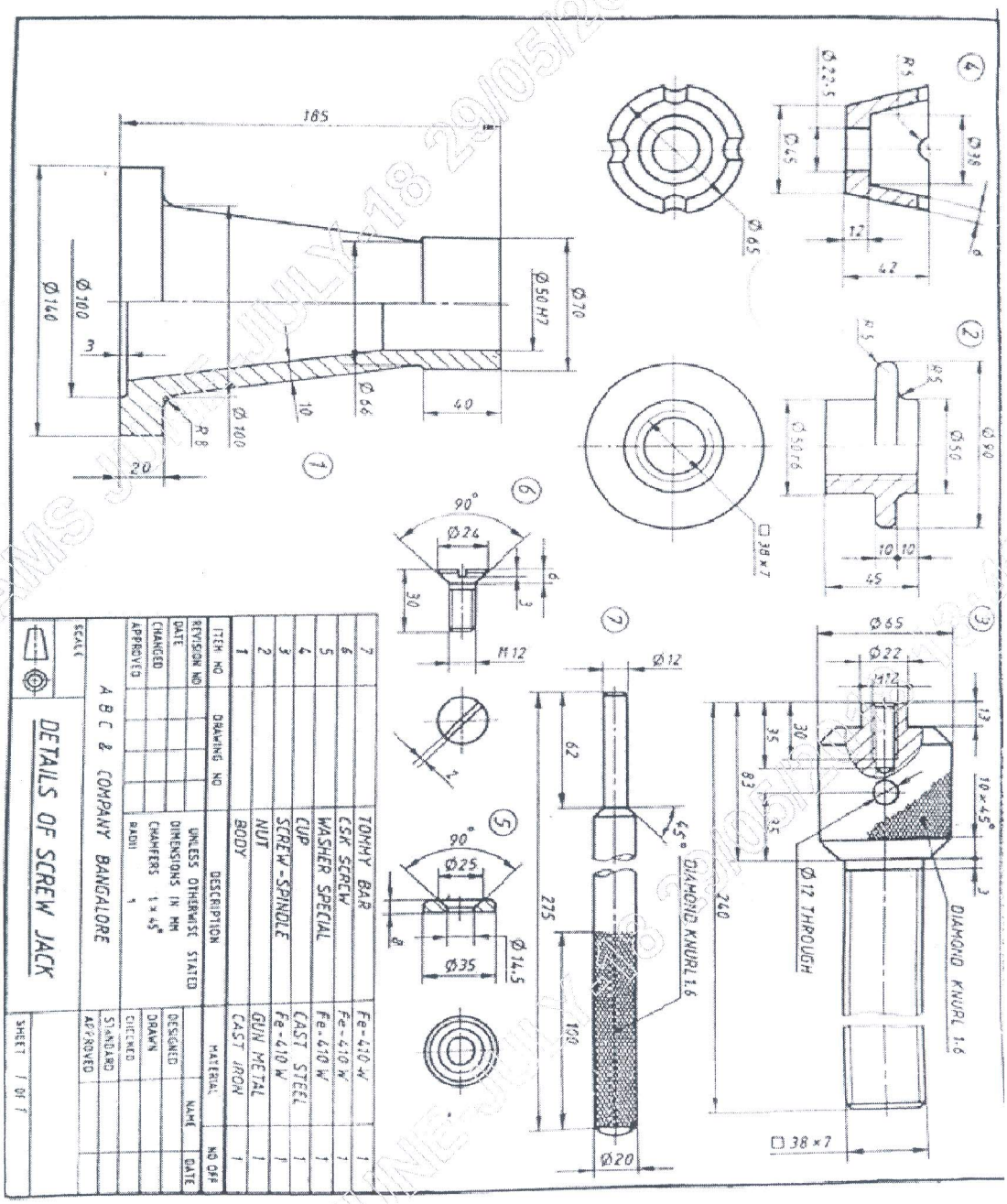

Figure 1: Details of screw jack

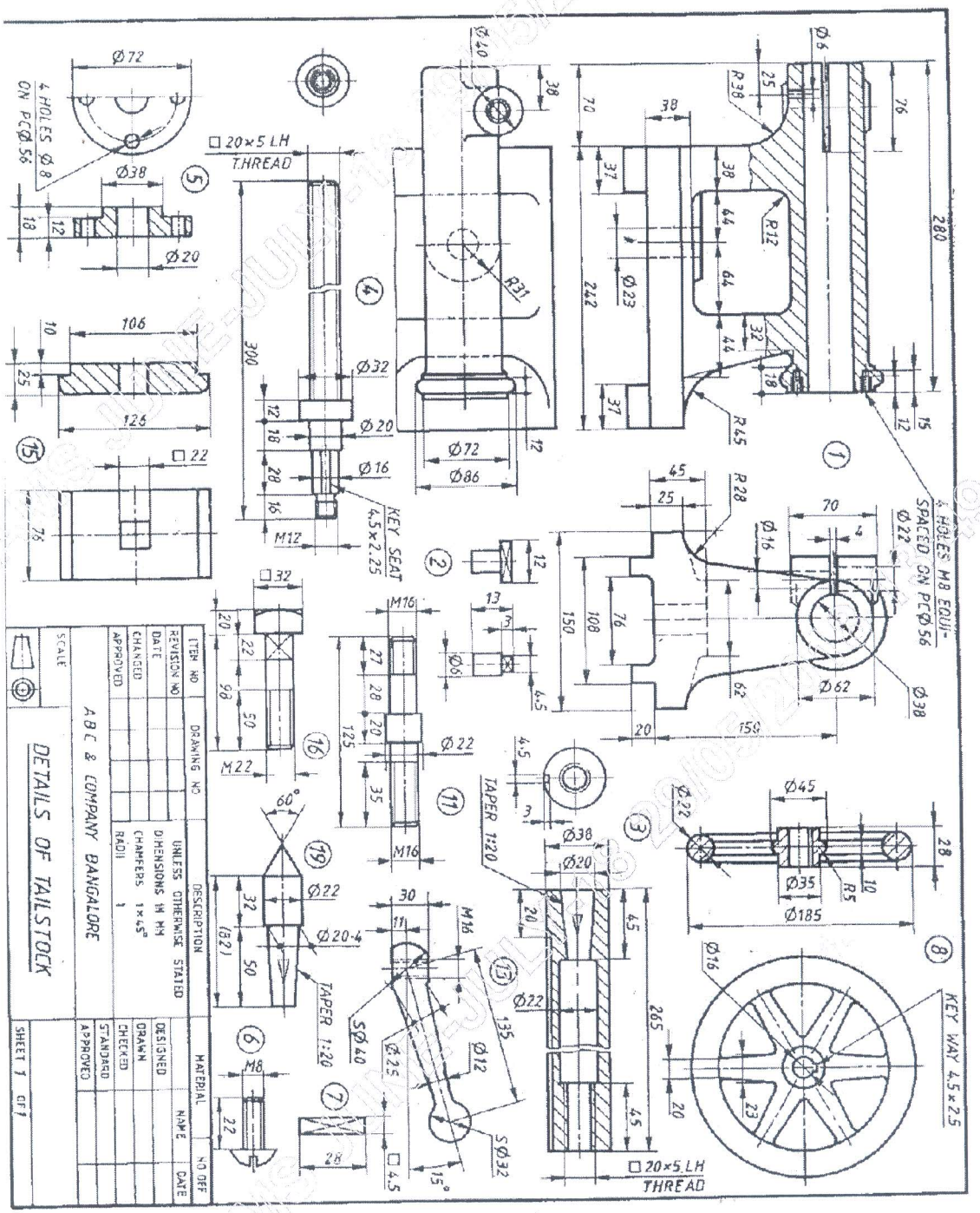

Figure 2: Details of tailstock

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5. All the dimensions are in mm.
6. Drawing instruments may or may not be used for sketching.
7. Part C assembly view should be in 3-D and other views in 2-D.

Part - A

1. A triangular pyramid, base 40mm sides and axis 60mm long, resting on its base on the HP with one of its base edges parallel to the VP. A Section plane passing through one of its base corners of the pyramid and the two slant edges at 20mm and 30mm above the HP cuts the pyramid. Draw the front view, sectional top view and true shape of section. Determine the inclination of the section plane with the reference plane. **(20 Marks)**

2. Draw (i) the sectional view from the front, (ii) the view from above and (iii) the view from the left of a fork shown in Fig. 1. **(20 Marks)**

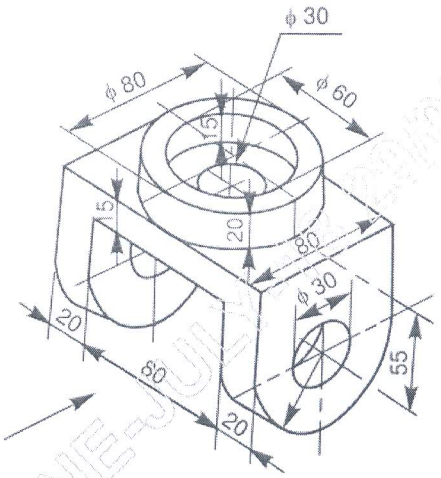

Fig. 1: Fork

Part – B

3. Draw the following view of a KNUCKLE JOINT used to joining two rods of diameter 25mm (a) Sectional front view (b) Top view. **(20 Marks)**

4. Draw sectional front view and side view of a Pin type flexible Coupling to connect two rods of diameter 20mm, indicate all dimensions. **(20 Marks)**

Part - C

5. Figure 2 shows the details of a Plummer block. Assemble the parts of the Plummer block and show the following views.
   a. Half sectional front view showing the right half in section
   b. Top view **(40 Marks)**

6. Figure 3 shows the details of a screw jack. Assemble the parts of the screw jack and show the following views
   a. Half sectional front view showing the right half in section
   b. Top view **(40 Marks)**

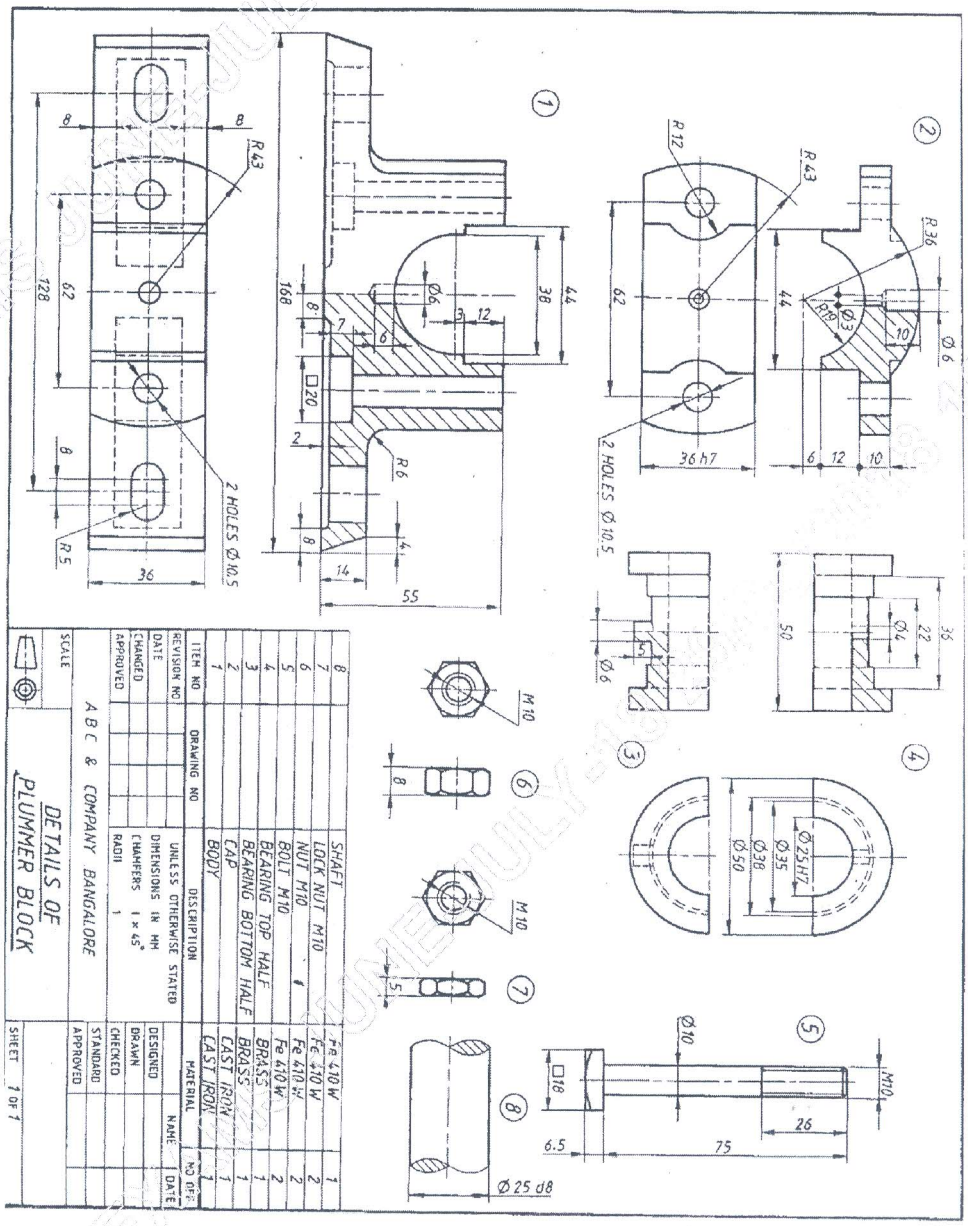

Figure 2:- Plummer Block

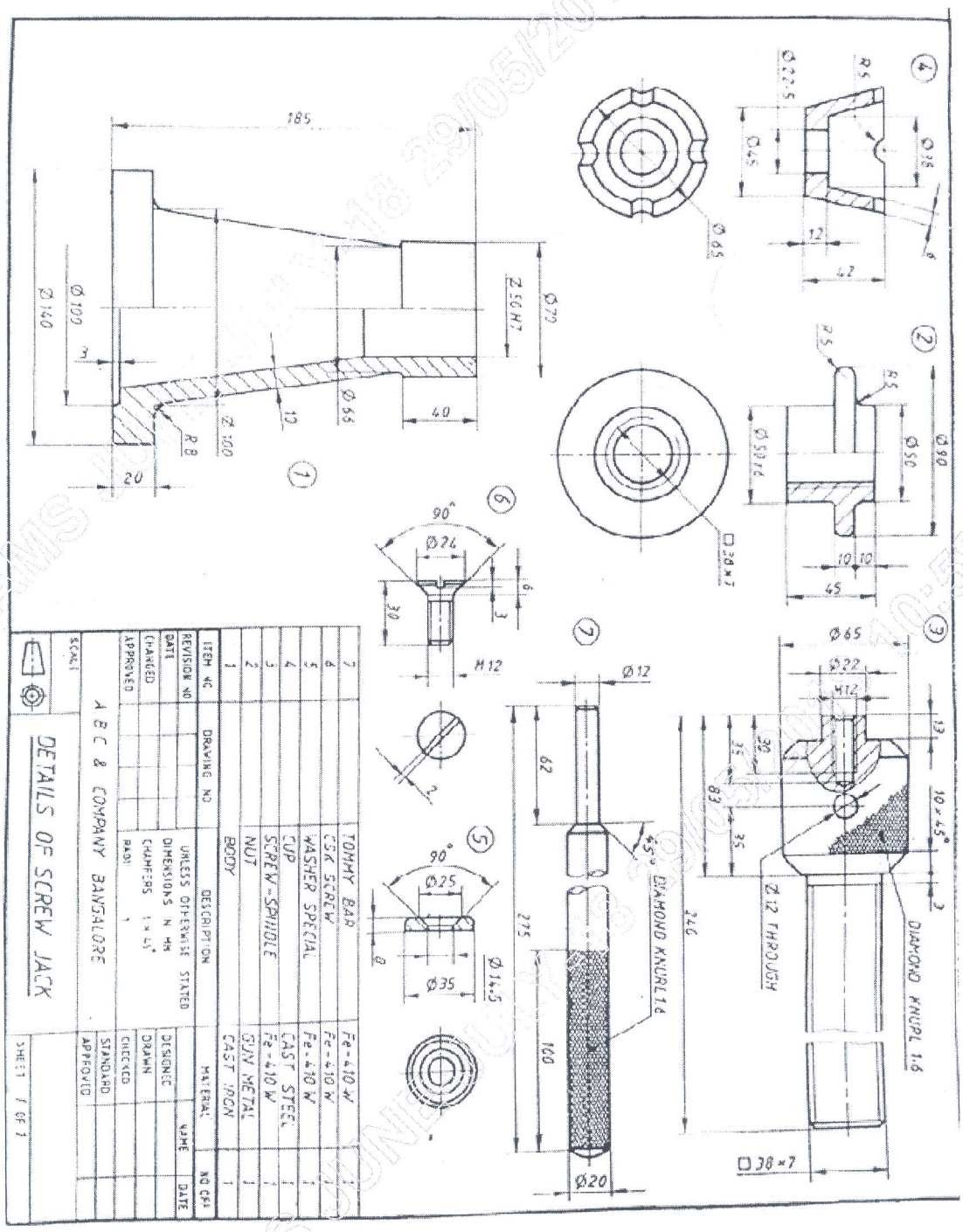

Figure 3:- Screw Jack

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6. Drawing instruments may or may not be used for sketching.
7. Part C assembly view should be in 3-D and other views in 2-D.

Part – A

1. A Cone of base diameter 50mm is resting on its base on HP. It is cut by section plane perpendicular to VP, so that the true shape of cut section is a triangle of base 40mm and altitude 63mm. Locate the section plane and determine the angle of inclination of VT with the reference line XY. Draw the front view. Determine the height of cone. Also draw the apparent section and true shape of section. **(20 Marks)**

2. Draw the two view of a square headed bolt and nut assembly for a diameter and length of bolt is 25mm and 80mm respectively. **(20 Marks)**

Part - B

3. Draw the following view of a SOCKET and SPIGOT COTTER JOINT used to joining two rods of diameter 20mm (a) Sectional front view (b) A view looking from socket end. **(20 Marks)**

4. Draw sectional front view and side view of a Protected Type Flange Coupling to connect two rods of diameter 20mm, indicate all dimensions. **(20 Marks)**

Part – C

5. Figure 1 shows the details of a screw jack. Assemble the parts of the screw jack and show the following views.
   a. Half sectional front view showing the right half in section
   b. Top view **(40 Marks)**

6. Figure 2 shows the part drawing of a tail stock. Assemble the tail stock and show the following views.
   a. Sectional front view showing the top spindle portion in section
   b. Left profile view **(40 Marks)**

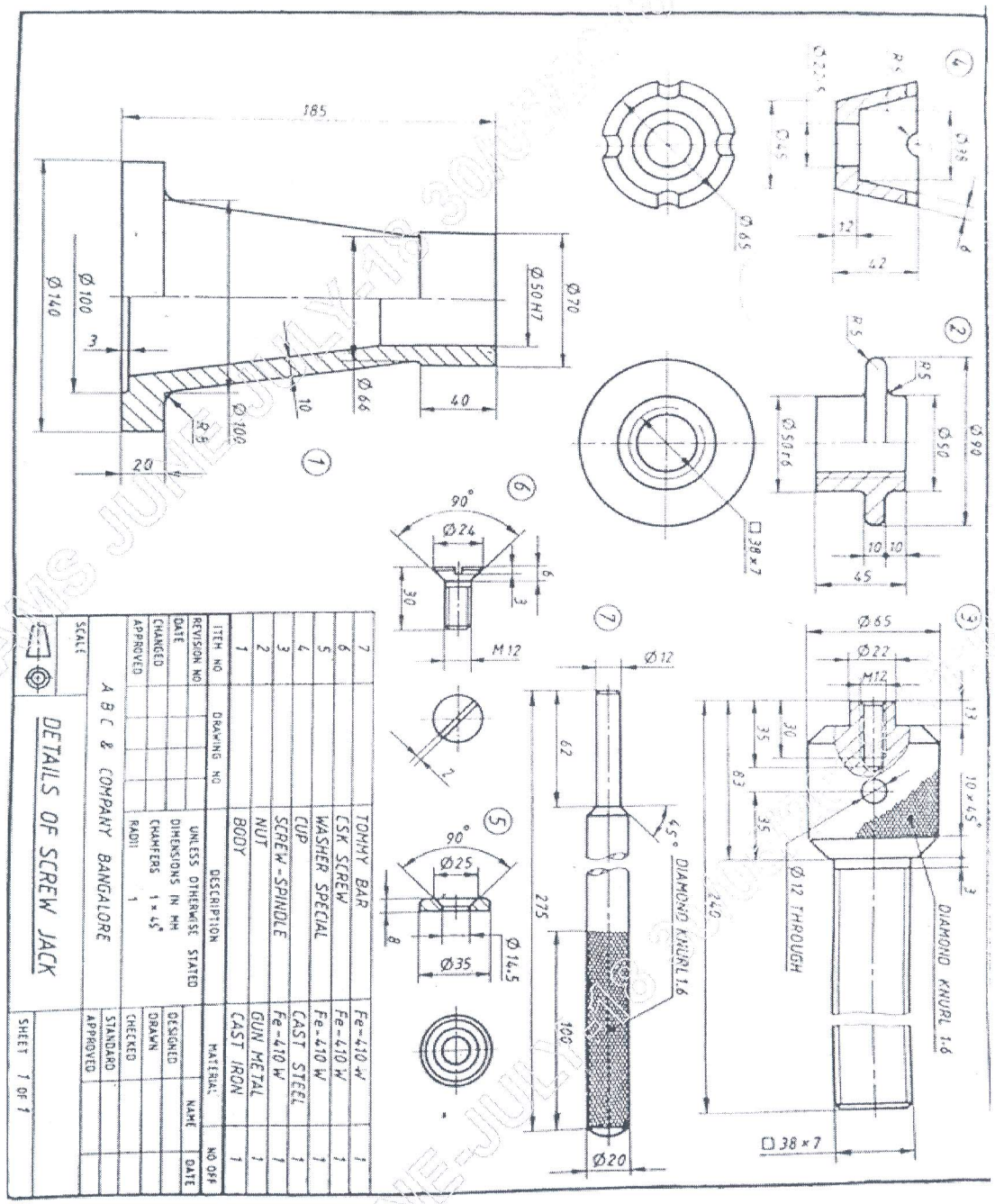

Figure 1: Details of screw jack

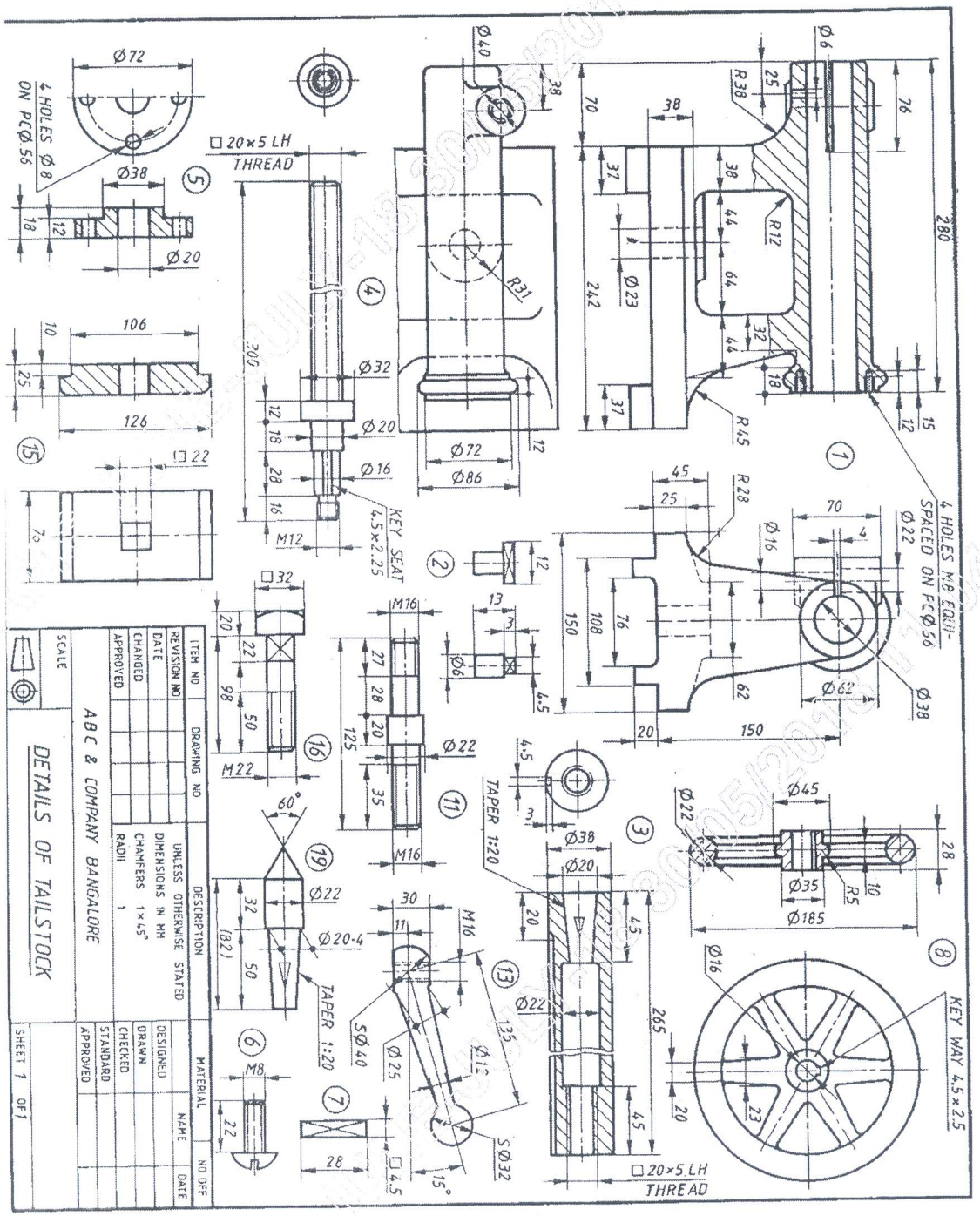

Figure 2: Details of tailstock

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4. All the calculations should be on the answer sheet supplied.
5. All the dimensions are in mm.
6. Drawing instruments may or may not be used for sketching.
7. Part C assembly view should be in 3-D and other views in 2-D.

Part – A

1. Draw (i) the sectional view from the front, (ii) the view from above and (iii) the view from right of the shaft bracket shown in Fig. 1. **(20 Marks)**

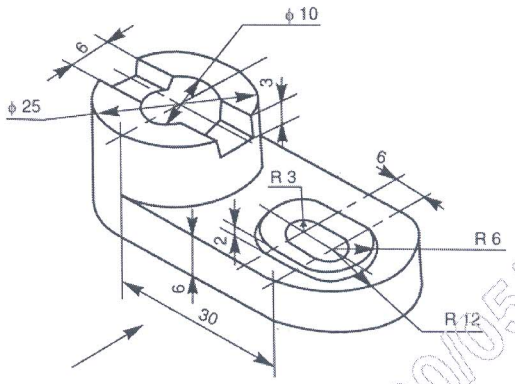

Fig. 1: Shaft bracket

2. A rectangular prism of height 75mm and cross section 60×37.5 mm is resting on its base on the HP with one of its shorter base edges parallel to VP. A VT whose width between its ends is equal to the longer base edge cuts the prism through one of the extreme base edges and pass through the lateral face opposite to that base edge. Draw the front view, sectional top view and true shape of the section. Measure the inclination of the section plane and sides of the true shape. **(20 Marks)**

Part – B

3. Draw the following view of a KNUCKLE JOINT used to joining two rods of diameter 25mm (a) Sectional front view (b) Top view. **(20 Marks)**

4. Draw sectional front view and side view of a Pin type flexible Coupling to connect two rods of diameter 20mm, indicate all dimensions. **(20 Marks)**

Part – C

5. Figure 2 shows the details of a Plummer block. Assemble the parts of the Plummer block and show the following views.
   a. Half sectional front view showing the right half in section
   b. Top view

   (40 Marks)

6. Figure 3 shows the details of a screw jack. Assemble the parts of the screw jack and show the following views.
   a. Half sectional front view showing the right half in section
   b. Top view

   (40 Marks)

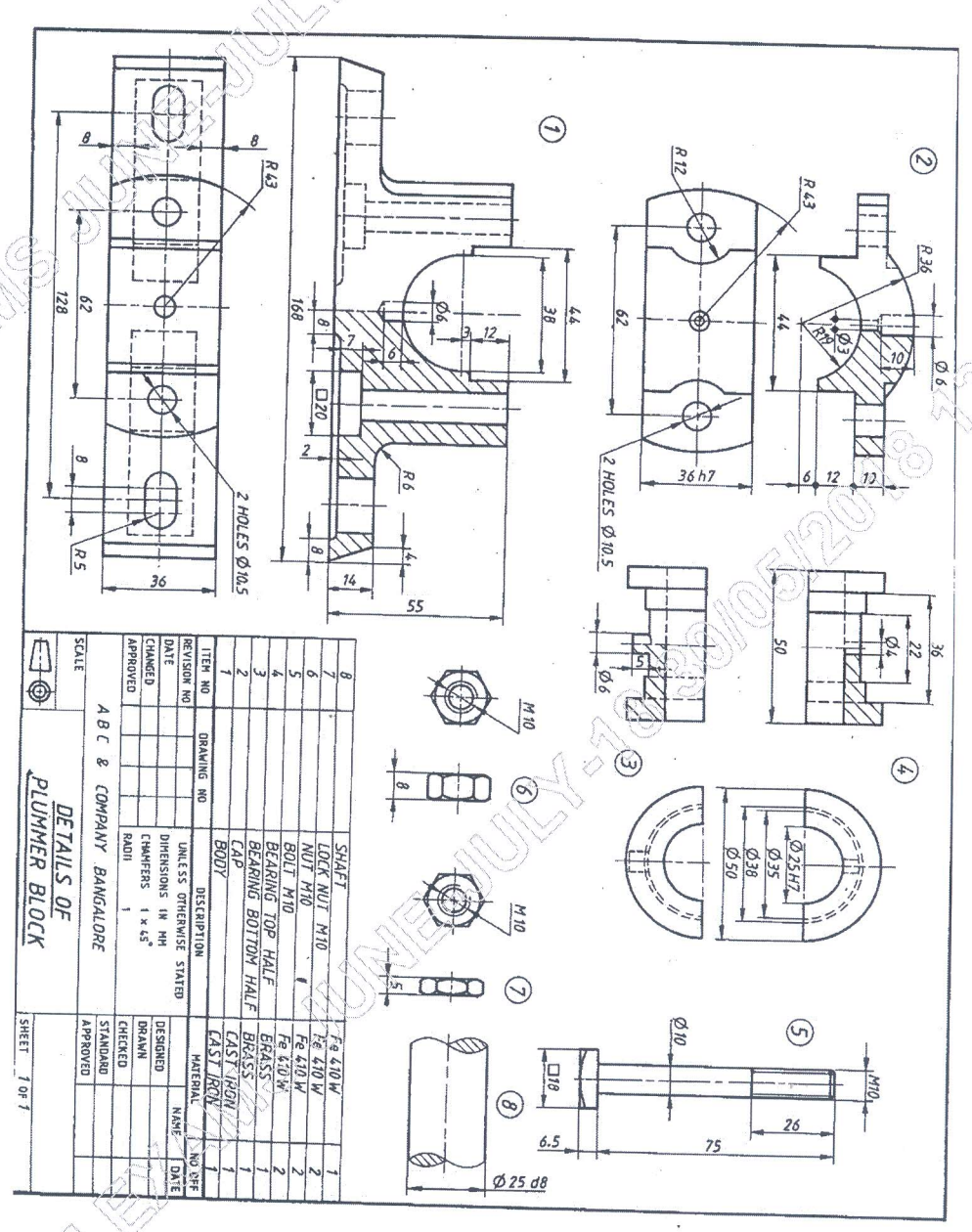

Figure 2:- Plummer Block

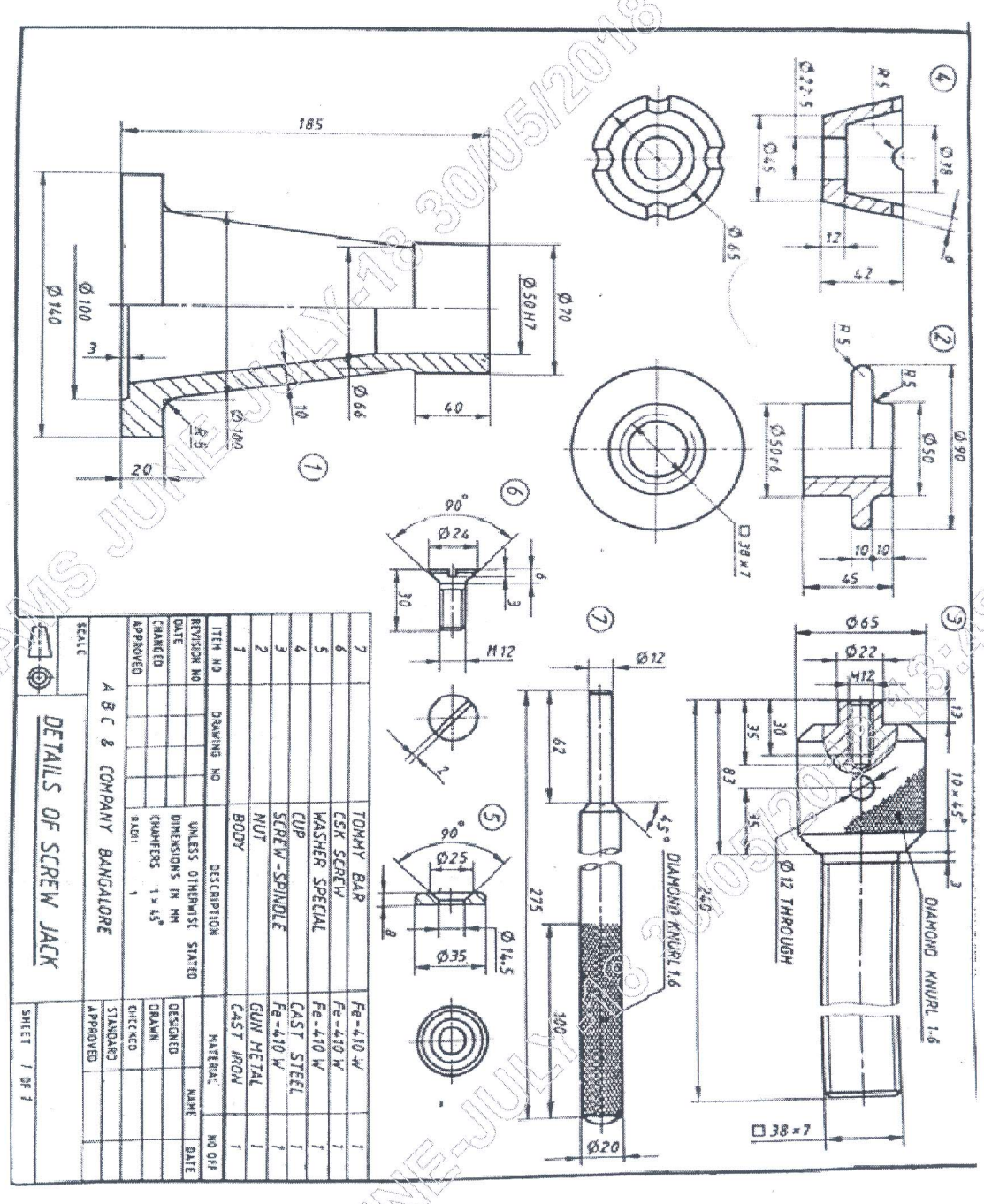

Figure 3:- Screw Jack