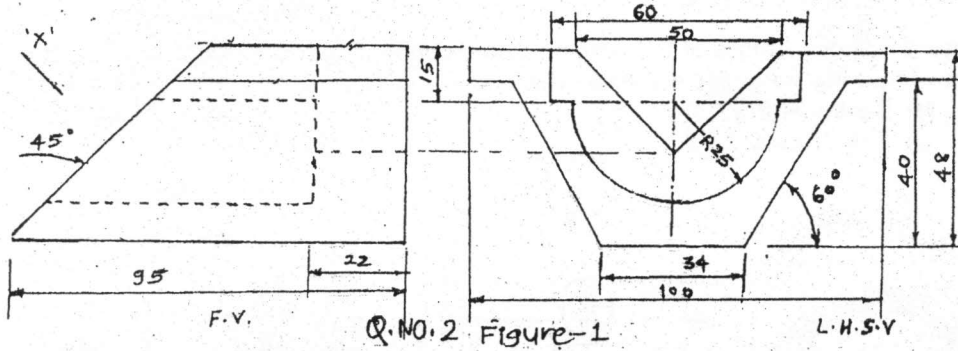


- N.B. : (1) Question No. 1 is compulsory.
(2) Attempt any four questions from remaining.
(3) Assume suitable dimensions wherever necessary.
(4) Use drawing sheets for answering.
(5) Use first angle method of projections for answering.
(6) Use suitable scale only if figures are too big or too small.



1. (a) A cone of base diameter 70 mm and height 85 mm is resting on its base. It is penetrated by a horizontal square prism of edge of base 35 mm and axis length 90 mm. The axis of the prism is parallel to V. P., 10 mm away from the axis of the cone and 30 mm above the base of the cone. The rectangular faces of the prism are equally inclined to V. P. Draw three views of the intersecting solids showing the curves of intersection. 12
(b) Explain types of fits with suitable examples. 8
2. (a) Figure 1 shows the F. V. and L. H. S. V. Draw the following to the scale :—
(i) F. V. and L. H. S. V. 3
(ii) Complete T. V. 5
(iii) Auxiliary view from the direction of arrow 'X'. 6

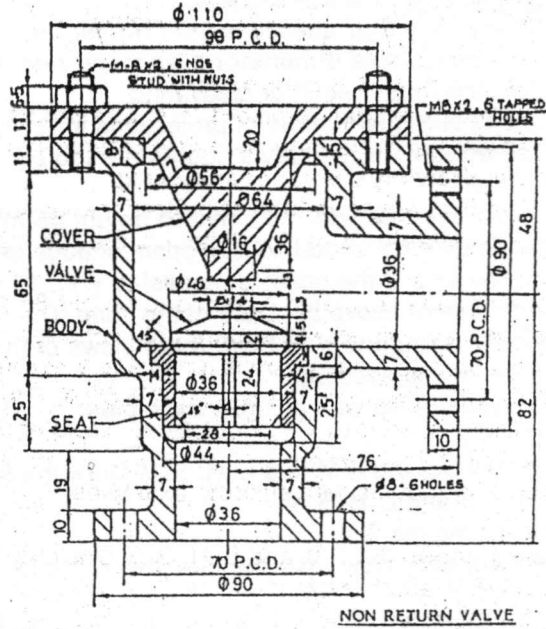


- (b) Define the term with suitable sketches :— 6
(i) Tolerance Zone
(ii) Upper and Lower deviation
(iii) Allowances.
3. Figure 2 shows the assembly of "NON RETURN VALVE" in one view. Using appropriate scale draw the following details as follow :—
(a) Cover :— 6
(i) Full sectional F. V. 4
(ii) Top View.
(b) Valve :— 3
(i) Front View. 2
(ii) Top View.
(c) Stud :— 2
(i) Front View 2
(ii) Top View. 3

(Refer Page No. 2 for figure)

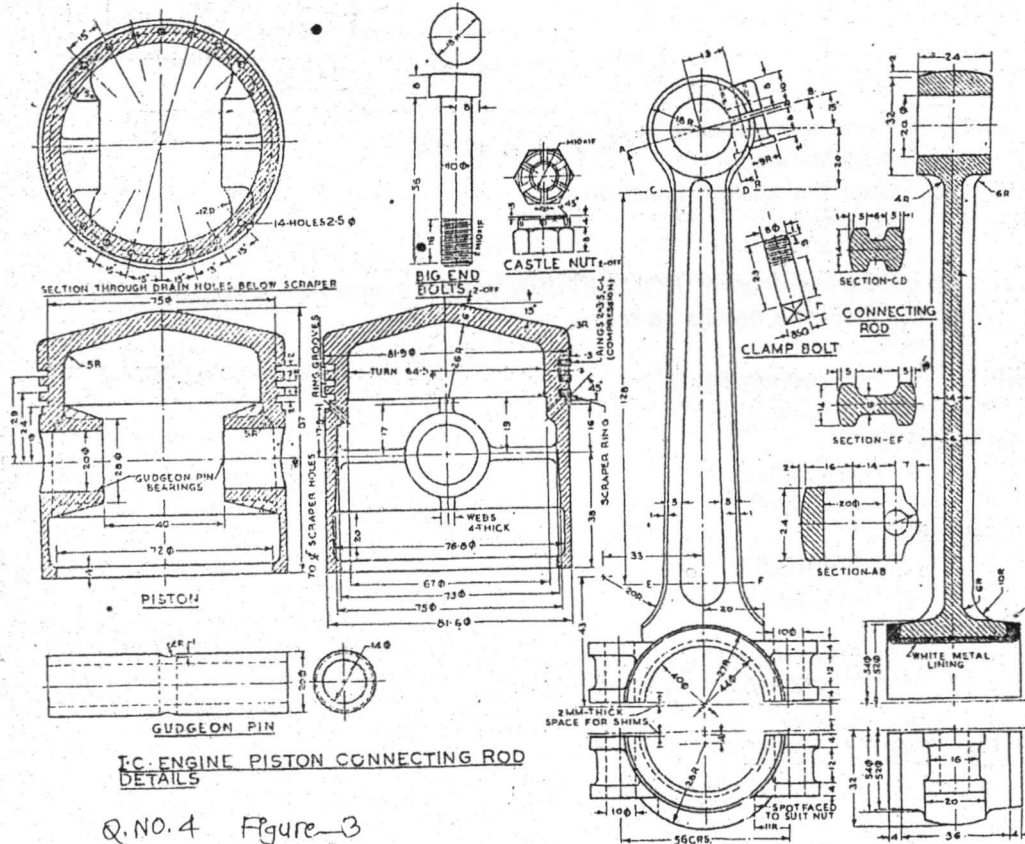


Q. No. 3, figure 2



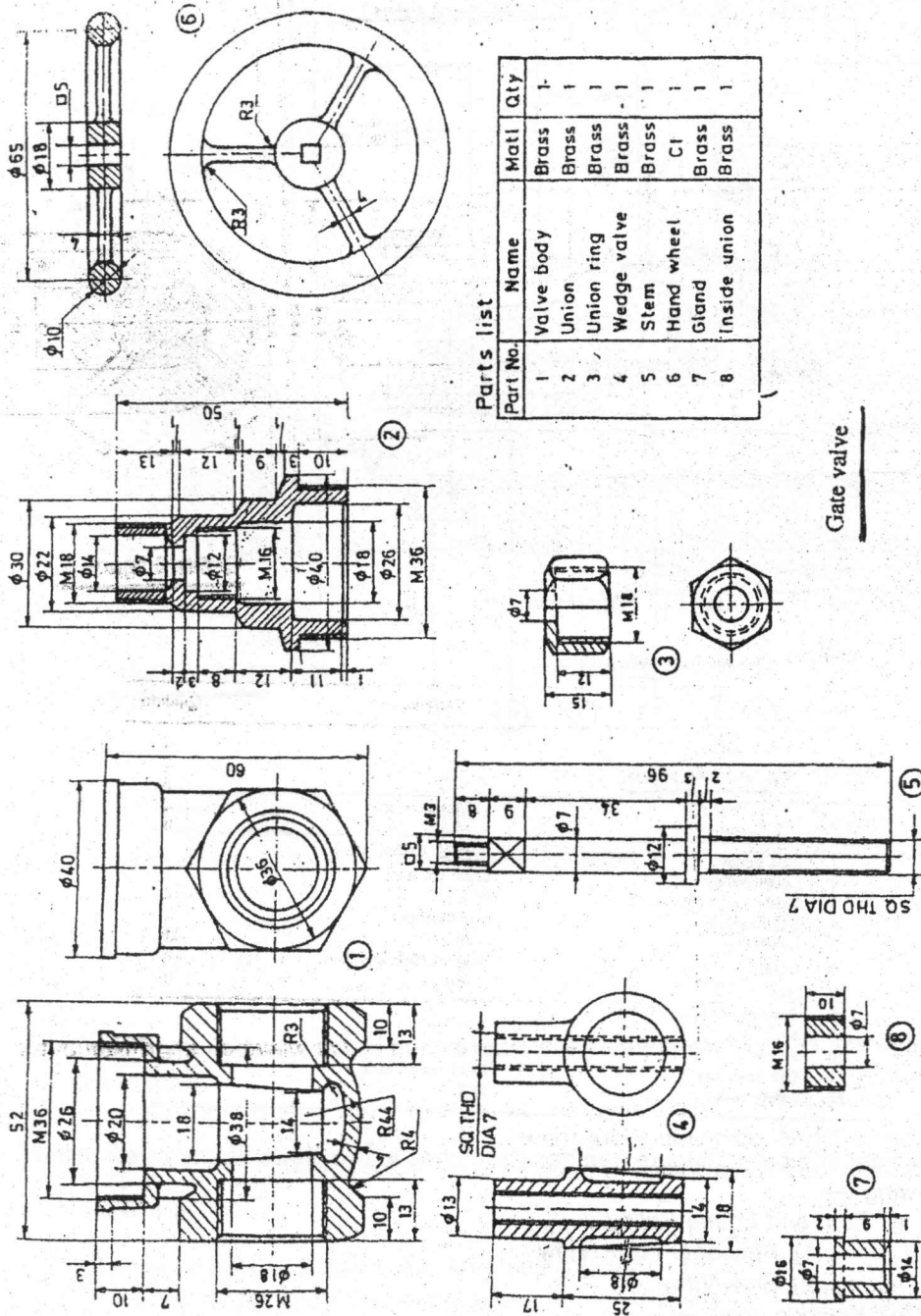
4. Figure 3 shows details of I. C. Engine piston connecting rod. Assemble all parts and draw following views for assembly :-
 (a) Sectional F.V.
 (b) Side View.

12
8



Q. NO. 4 Figure-3

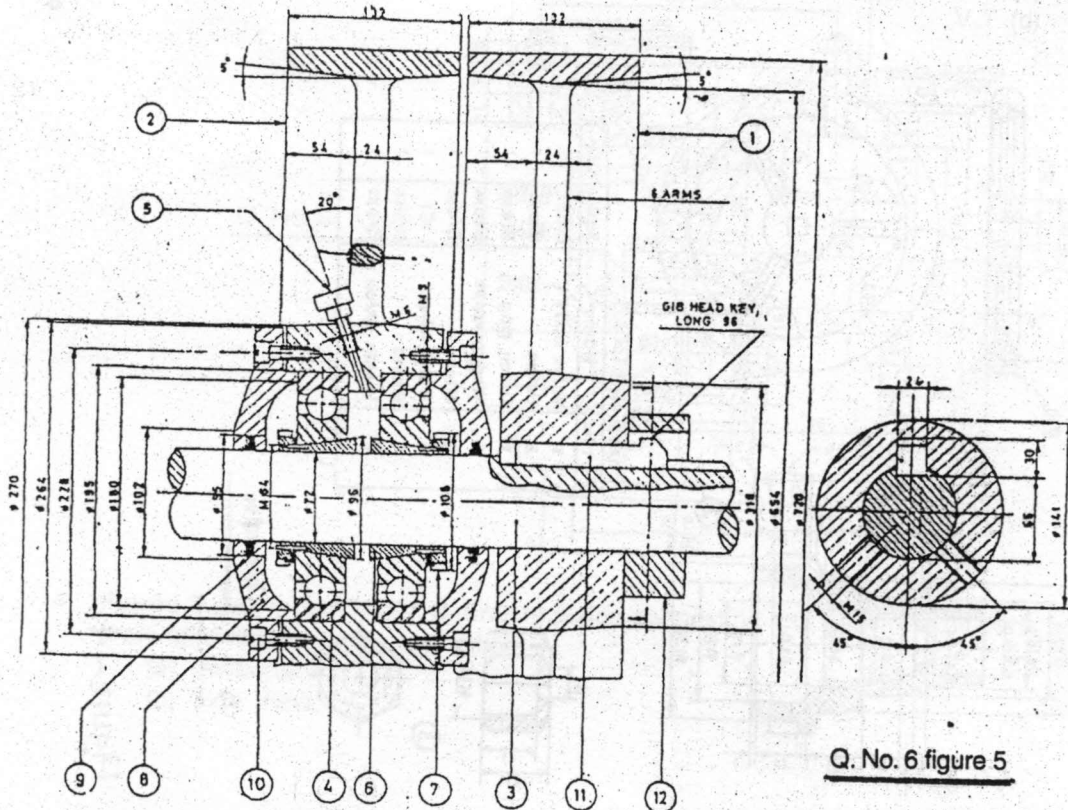
5. Figure 4 shows details of Gate Valve. Assemble all parts and using scale 2 : 1 draw following views for the assembly :—
 (a) Sectional F. V. 12
 (b) T. V. 8



Q. NO. 5 Figure-4

6. Figure 5 shows an assembly of fast and loose pulleys. Draw :—
 (a) Loose pulley :— 6
 (i) Sectional F. V. 4
 (ii) Side View. 4
 (b) Bearing cover :— 4
 (i) F. V. (Part No. 8) 4
 (ii) R. H. S. V. 2
 (c) Lubricator (front view only)

[TURN OVER



Q. No. 6 figure 5

Part List Fast and loose pulleys

Part No.	Name	Material	Quantity
1	Fast pulley	C.I.	1
2	Loose pulley	C.I.	1
3	Shaft	M.S.	1
4	Ball bearing	Standard part	2
5	Lubricator	M.S.	1
6	Bush	High carbon steel	
7	Nut	Ni Cr steel	2
8	Bearing cover	C.I.	2
9	Seal	Rubber	2
10	Screw	M.S.	16
11	Gib head key	Cold rolled M.S.	1
12	Safety collar	M.S.	1

7. (a) Draw neat and proportionate free hand sketches in two views of any **three** of the following :—

(i) *Fast and Loose Pulley* :—

- (1) Sectional Front View
- (2) Side View.

3
2

(ii) *Knuckle Joint* :—

- (1) Sectional Front View
- (2) Top View.

3
2

(iii) *Universal Coupling* :—

- (1) Sectional Front View
- (2) Left Hand Side View.

3
2

(iv) *Union Joint* :—

- (1) Sectional Front View
- (2) Side View.

3
2

(b) Explain meaning of $\text{Ø } 50 \text{ H}_7/\text{s}_6$ value of tolerance are :—

$$+25 \mu\text{m} \quad +59 \mu\text{m}$$

5

$$\text{H}_7 \quad 00 \mu\text{m} \quad \text{s}_6 \quad +43 \mu\text{m}$$

Indicate type of fit. Draw with neat sketch.