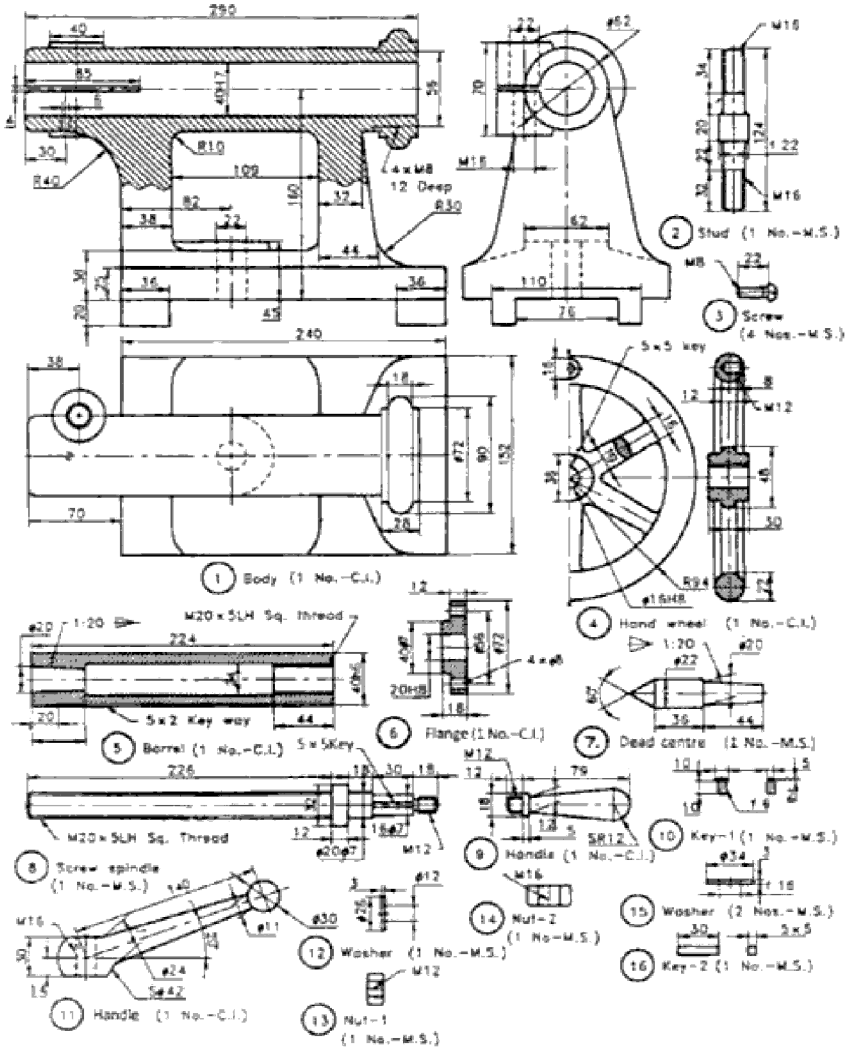


Figure 3 : Lathe Tailstock (Parts)

******

Total No. of Questions : 7] *[Total No. of Printed Pages : 4*

Roll No .....

AU/IP/IEM/ME/PR-305

B.E. III Semester

Examination, December 2016

Machine Drawing And Design

Time : Four Hours

Maximum Marks : 70

Note: i) Attempt any four questions.

ii) Question No. 3 is Compulsory but has internal choice and carry 28 marks.

1. Draw the following machine parts and their conventional representation.
   - i) Internal thread
   - ii) Splined shaft
   - iii) Leaf spring with eye
   - iv) Spur gear
   - v) Bearings

2. Draw the sectional front view, top view and side view of the stopper given in Figure 1.

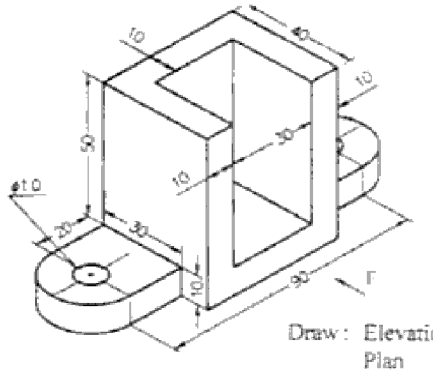
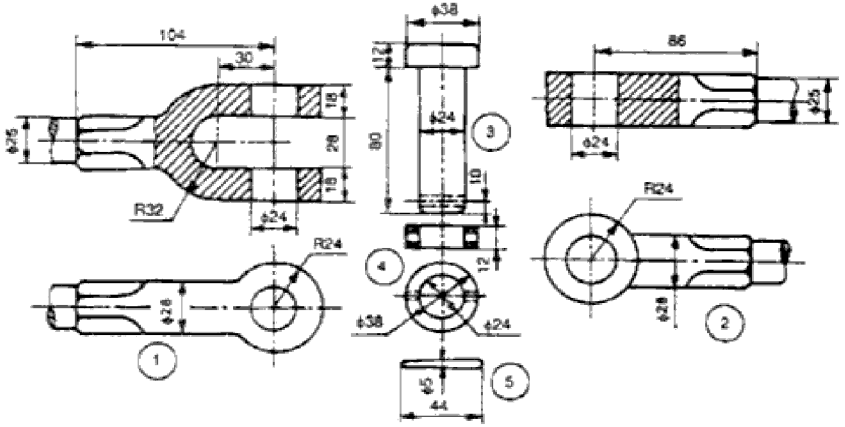


Figure 1

Draw : Elevation
Plan
Right side

456

3. Draw full sectional front view and top view of the Knuckle joint whose parts are given in figure 2.



Parts list

Sl. No.	Name	Matl.	Qty.
1	Fork end	Forged steel	1
2	Eye end	Forged steel	1
3	Pin	Mild steel	1
4	Collar	Mild steel	1
5	Taper pin	Mild steel	1

Figure 2

OR

Draw the sectional front view of the Lathe tailstock whose parts are given in figure 3. Also prepare a part's list of tailstock.

4. a) What are the advantages of using CAD?
   b) Discuss the basic design process with the help of flow diagram.

5. Two rods are connected by means of a Knuckle joint. The axial force acting on the rods is 25 kN. The rods and pin are made of plain carbon steel with yield strength of 380 N/mm^2 and the factor of safety of 2.5. The yield strength in shear is 60% of yield strength in tension. Calculate the diameter of rod and pin.

6. a) What is factor of Safety? Why it is necessary?
   b) Write a short note on standardization.

7. Two flat plates of width 200mm are connected by means of double strap butt joint. A tensile force of 250 kN acts on the plates. The plates and rivets are made of steel with permissible stress of 70, 100 and 60N/mm^2 respectively in tension, compression and shear. Calculate :
   i) The diameter of the rivets
   ii) The thickness of the plates
   iii) The efficiency of joint