

Academic Session:2019-2020

Unit : I,II,III,IV

Subject Name : Machine Design and Drawing I

Max Marks 20

Semester : IV

Date 24/12/2020

Subject Code : 4ME 05

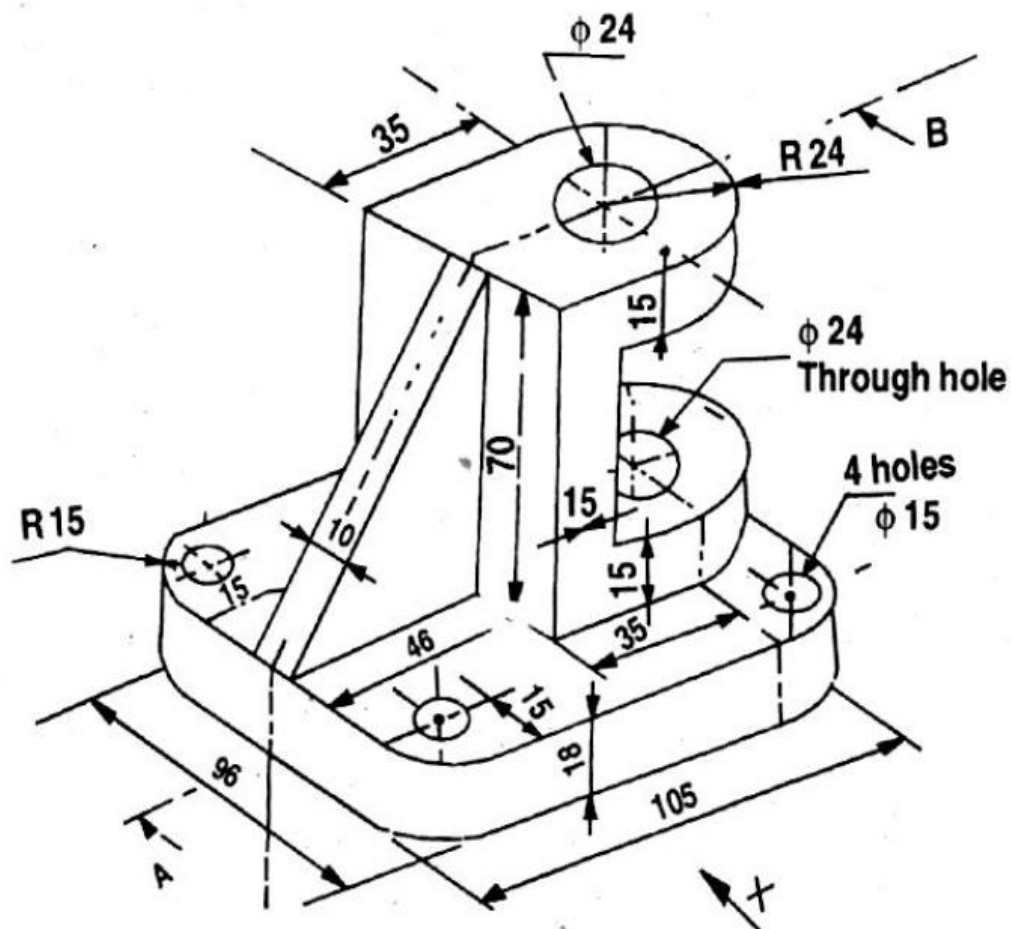
Note: Solve any 2 questions out of 4 questions.

All Questions Carry Equal Marks.

Q.1st (a) Figure shows the pictorial view of a component. Draw the following views using Third angle method.

(i) Sectional Front View along A-B (ii) Top view (iii) Side view.

5 Marks

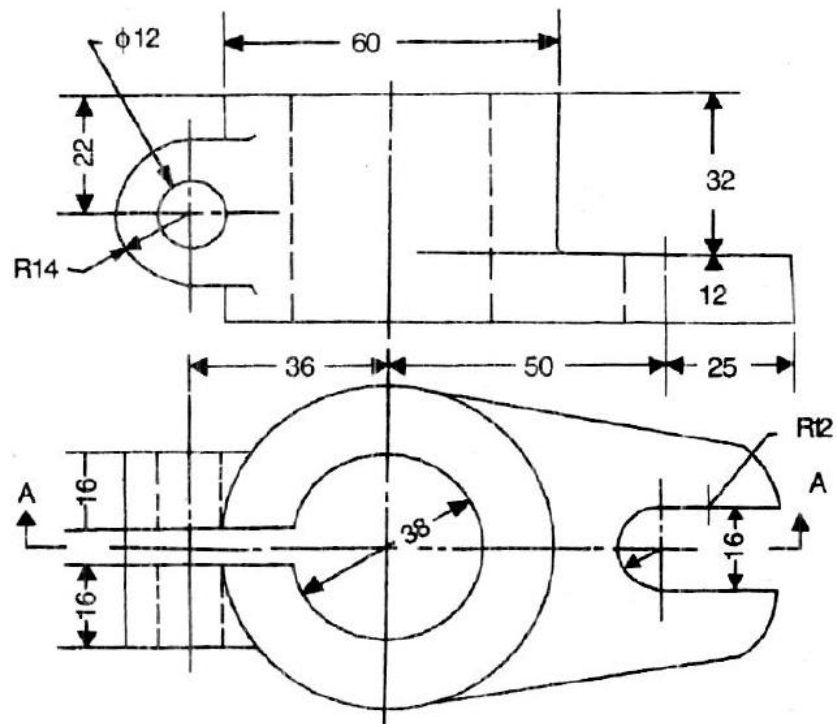


b) A vertical square prism base 60 mm side and axis height 105 mm has a rear rectangular face inclined at 30° to V P. It is completely penetrated by a horizontal square prism of 45 mm edge of base and 105 mm long, face of which are equally inclined to H. P. Axis of two prisms are parallel to V P and bisect each other at right angles. Draw projection of solid showing lines of intersection. 3 Marks

c) What are the steps involved in design of machine element. 1 Marks

d) What is nip of leaf spring? what are the objectives of nipping of leaf spring. 1 Marks

Q.2nd a) Draw by first angle method : (i) Sectional front view (ii) Side view **4 Marks**



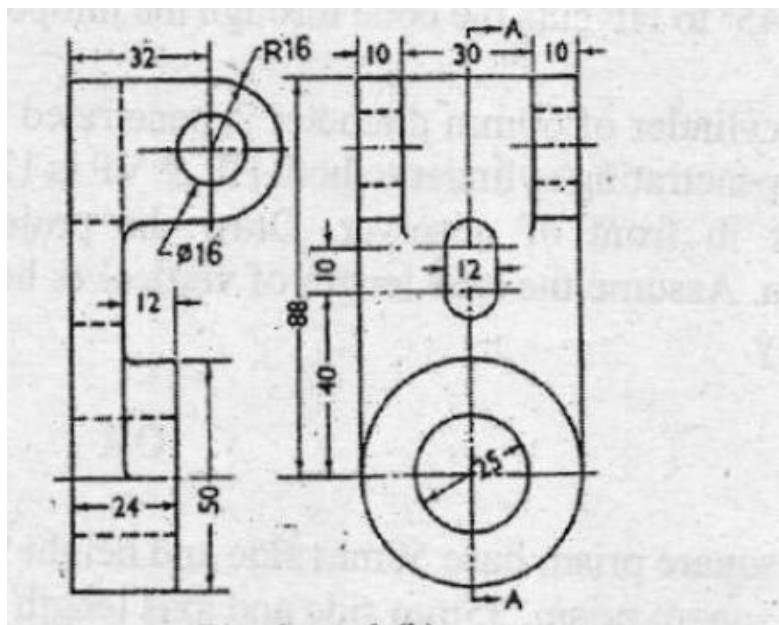
b) A vertical cylinder of 80 mm diameter resting on the ground is penetrated by a horizontal square prism of 55 mm side, the axis of which is parallel to V P and 12 mm away from the axis of the cylinder. The prism has all its face's equally inclined to H. P Draw the projection showing curves of intersection. **2 Marks**

c) What is a knuckle joint ? Give advantages and practical examples. **2 Marks**

d) What is power screw ? What is self locking and overhauling of power screw **2 Marks**

Q.3rd

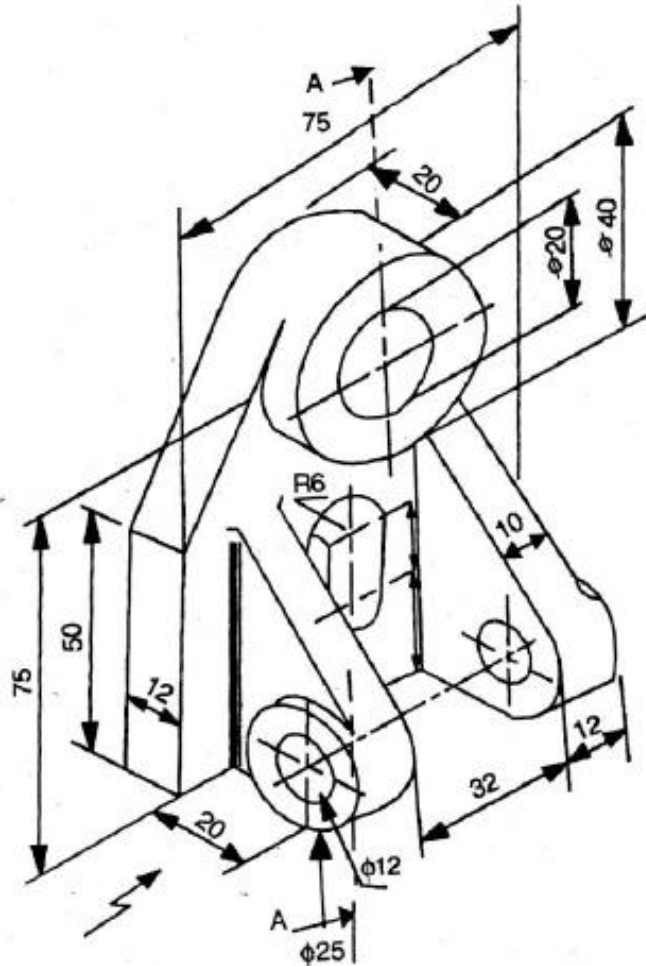
a) Draw by third angle projection method (fig.2) i) Sectional side view ii) Top view **4 marks**



- b) A cone of diameter 40mm & slant height 60mm is kept on the ground on its base. An AIP 10 inclined at 45° to HP cuts the cone through the midpoint of the axis. Draw the development. **2 Marks**
- c) What is Caulking and Fullering? What are its objectives? **2 marks**
- d) What is Wahl factor? Why is it used? **2 marks**

Q 4th

- a) Draw the following views of component from given fig.3 by using first angle projection Method. i) Front view ii) Top view iii) Sectional side view along A - A. **4 marks**



- b) A vertical square prism base 50mm side and height 90mm is completely penetrated by a horizontal square prism, 35mm side and axis length 90 mm so that their axes are 6mm apart & in front of the observer, The axis of the horizontal prism is parallel to VP, while one face of both prisms are equally inclined to VP. Draw the projections of prisms showing the lines of intersections. **4 marks**
- c) Explain the stress-strain diagram for a mild steel under tensile test. **1mark**
- d) Why the square threads preferable to v-threads for power transmission. **1marks**