(ii) Out of hole basis system and shaft basis system, which one is preferred in industry and why ?

(iii) What is meant by direction of lay ? How is it shown on a drawing ?

(iv) Why a gear drive is called a positive drive ?

(v) Differentiate between temporary and permanent fasteners by giving at least *two* examples of each.

Roll No. ..... **Total Pages : 06**

Sep-21-00027

B. Tech. EXAMINATION, 2021

Semester III (CBCS)

MACHINE DRAWING (ME, AE)

ME-304

Time : 2 *Hours* *Maximum Marks :* 60

The candidates shall limit their answers precisely within 20 pages only (A4 size sheets/assignment sheets), no extra sheet allowed. The candidates should write only on one side of the page and the back side of the page should remain blank. Only blue ball pen is admissible.

Note : Attempt *Four* questions in all, selecting *one* question from any of the Sections A, B, C and D. Q. No. **9** is compulsory. Supplement you answer with suitable sketches wherever required. Assume the data suitably, if required.

Section A

1. With the help of a sketch, show how geometrical tolerances are indicated on a drawing. Show at least *five* types of geometrical tolerances. **15**

2. Calculate the maximum limit, minimum limit, upper deviation and lower deviation, for both the shaft and the hole for the fit 45H8d7; using the tables for tolerances and also name the type of fit obtained. **15**

Section B

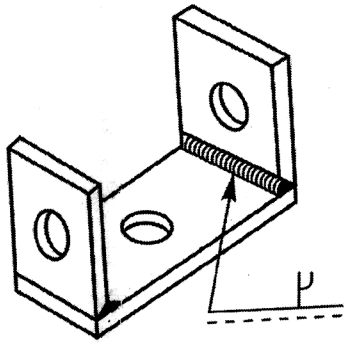
3. A gear has 30 teeth of involute profile, pitch circle diameter of 180 mm and pressure angle of 20°. Draw the profile of four complete teeth for the gear. **15**

4. Draw the three views of a hexagonal headed bolt of nominal diameter 25 mm and length 100 mm; with a hexagonal nut and washer. **15**

Section C

5. Using third angle projection method, draw sectional front view and top view of the following riveted joints, to join plates of thickness 10 mm : **15**
   (i) Single riveted lap joint
   (ii) Single riveted, single strap butt joint.

6. Explain the meaning of the welding symbol shown in next figure and sketch the part drawings using first angle projection method. **15**



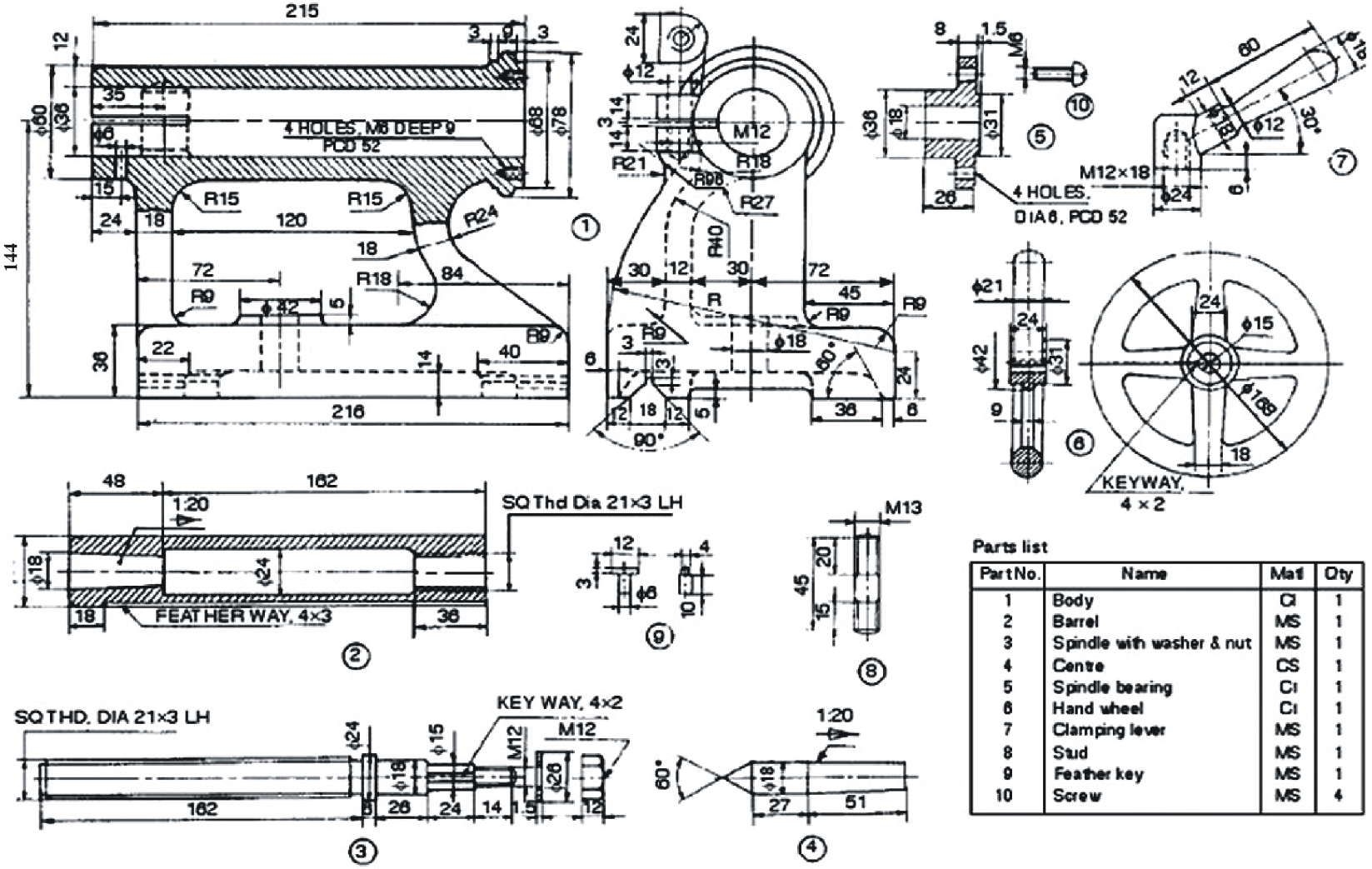
Section D

7. Figure (1) shows the detail of a lathe tail-stock. Assemble the parts and draw to a suitable scale, as per first angle projection method (i) sectional front view and (ii) left side view. **15**

8. Figure (2) shows the detail of a machine vice. Assemble the parts and draw to a suitable scale, as per first angle projection method (i) sectional front view and (ii) top view and (iii) left side view. **15**

(Compulsory Question)

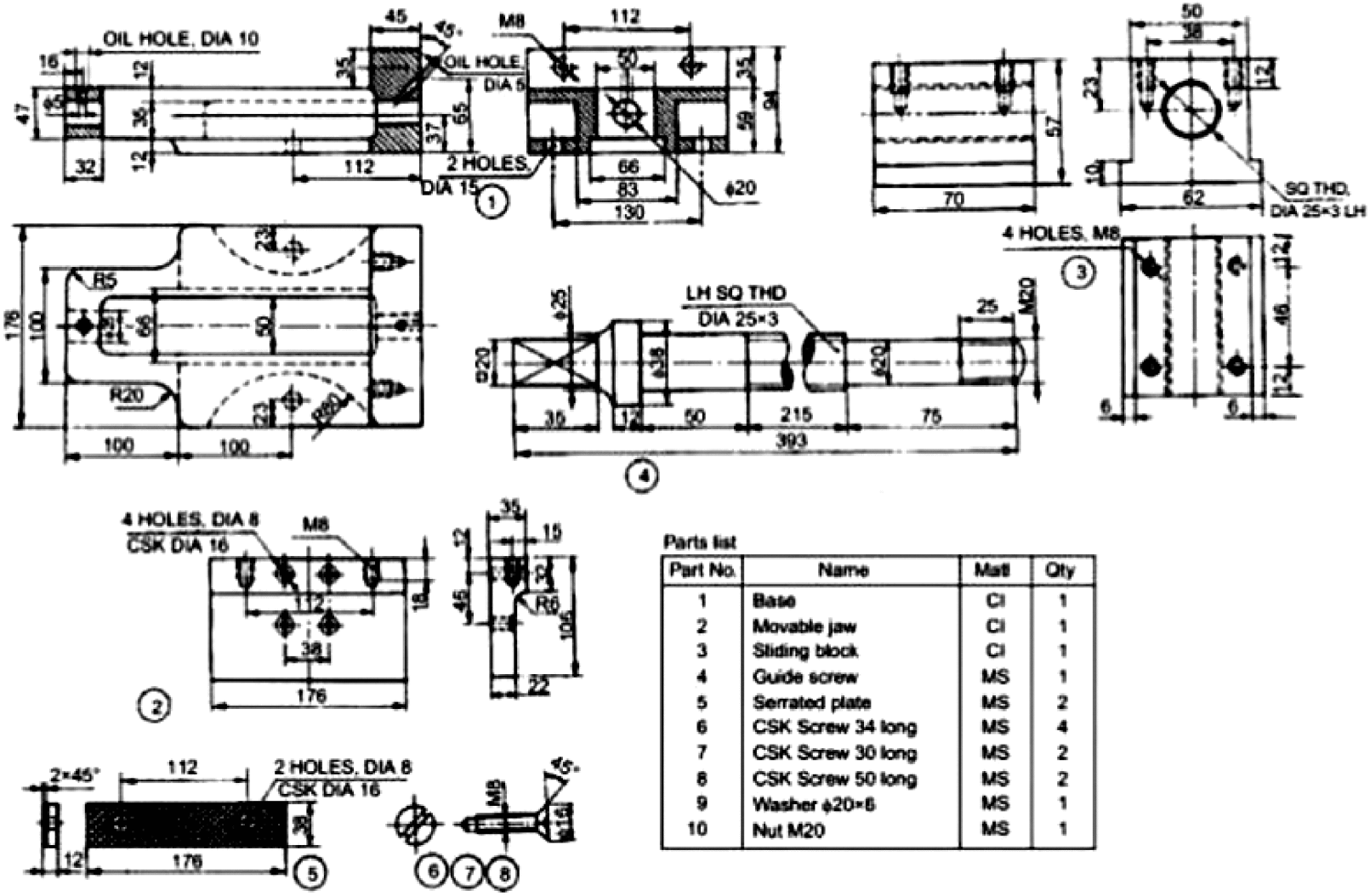
9. Short answer type questions : **5×3=15**
   (i) Differentiate between unilateral and bilateral tolerance by giving an example.



Parts list

Part No.	Name	Mat	Qty
1	Body	CI	1
2	Barrel	MS	1
3	Spindle with washer & nut	MS	1
4	Centre	CS	1
5	Spindle bearing	CI	1
6	Hand wheel	CI	1
7	Clamping lever	MS	1
8	Stud	MS	1
9	Feather key	MS	1
10	Screw	MS	4

Fig. (1)



Parts list

Part No.	Name	Matl	Qty
1	Base	CI	1
2	Movable jaw	CI	1
3	Sliding block	CI	1
4	Guide screw	MS	1
5	Serrated plate	MS	2
6	CSK Screw 34 long	MS	4
7	CSK Screw 30 long	MS	2
8	CSK Screw 50 long	MS	2
9	Washer ϕ20×6	MS	1
10	Nut M20	MS	1

Fig. (2)