



17305

21314

4 Hours/100 Marks

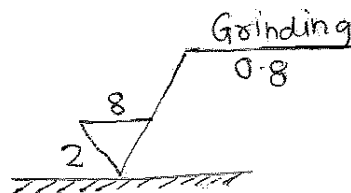
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- Instructions:** (1) **All questions are compulsory.**
(2) **Illustrate your answers with neat sketches wherever necessary.**
(3) **Figures to the right indicate full marks.**
(4) **Assume suitable data, if necessary.**
(5) **Use of Non-programmable Electronic Pocket Calculator is permissible.**

MARKS

1. a) Draw conventional representation for **any six** of the following : 12
Pulley in section
Check valve
Splined shaft
Compression spring with circular section
Spur gear
Saddle key
Cross pipe joint
External screw thread
- b) Attempt **any two** of the following : 8
a) Draw the symbols for the following :
i) Fillet weld ii) Single-V butt
iii) Single-Bevel butt iv) Spot weld
- b) The shaft has a size of $35_{-0.04}^{-0.02}$ and a hole has a size of $35_{+0.00}^{+0.02}$. Find the allowances to determine the type of fit between them.
- c) State the meaning of following symbol.



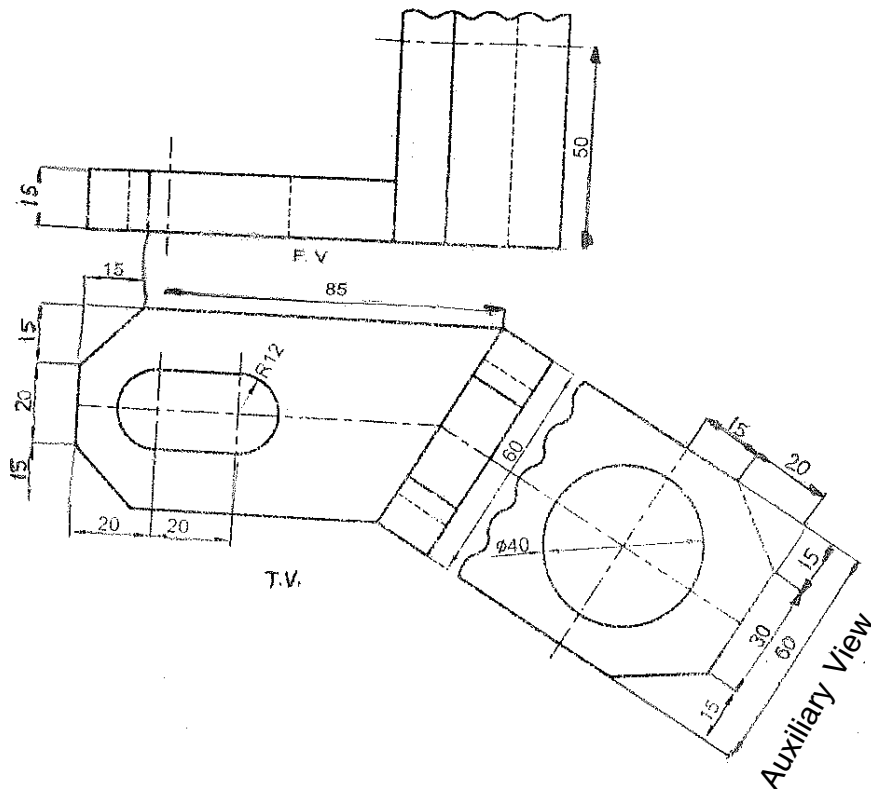
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MARKS

2. a) Figure shows the incomplete front view, top view and partial auxiliary view of bracket. Draw the given views and complete the front view.

12



- b) Attempt **any two** of the following :

8

- a) Determine the tolerance for the basic size in the nominal steps of 50 mm to 80 mm for :
 - i) The tolerance grade 8
 - ii) The tolerance grade 12
- b) Two mild steel plates of 8 mm thickness are to be welded to have a lap joint by a fillet weld of leg length 8 mm. Represent the weld on drawing with proper symbols.



MARKS

- c) Draw the symbols for following features which are controlled in geometrical tolerancing.
- i) Flatness
 - ii) Cylindricity
 - iii) Position
 - iv) Parallelism

3. Attempt **any two** of the following :

20

- a) A cone base diameter 70 mm and axis 65 mm is kept on the H.P. on its base. It is penetrated by a horizontal cylinder of 35 mm diameter with its axis parallel to V.P. and intersecting the axis of the cone at a distance of 20 mm above the base of the cone. Draw the projections of solids showing curves of intersection.
- b) A square prism side of base 60 mm, axis 80 mm, rest on HP on its base with an edge of base inclined at 30° at V.P. It is completely penetrated by a cylinder with diameter 60 mm. Axis of cylinder is parallel to HP and VP both and bisects the axis of square prism. Draw the three views showing curves of intersection.
- c) 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. Faces of which are equally inclined to HP, axis of two prisms are parallel to VP and bisect each other at right angles. Draw the projections of solids showing lines of intersection.



4. Attempt **any one** :

a) Figure 4. a) shows the details of a Oldham's coupling. Draw the following views of the assembly

- I) Sectional front view
- II) L.H.S.V.

Give overall dimensions. Indicate the parts on assembly. Prepare bill of material. Indicate assembly fits on the drawing. The axes of shaft are parallel to each other and 24 mm apart.

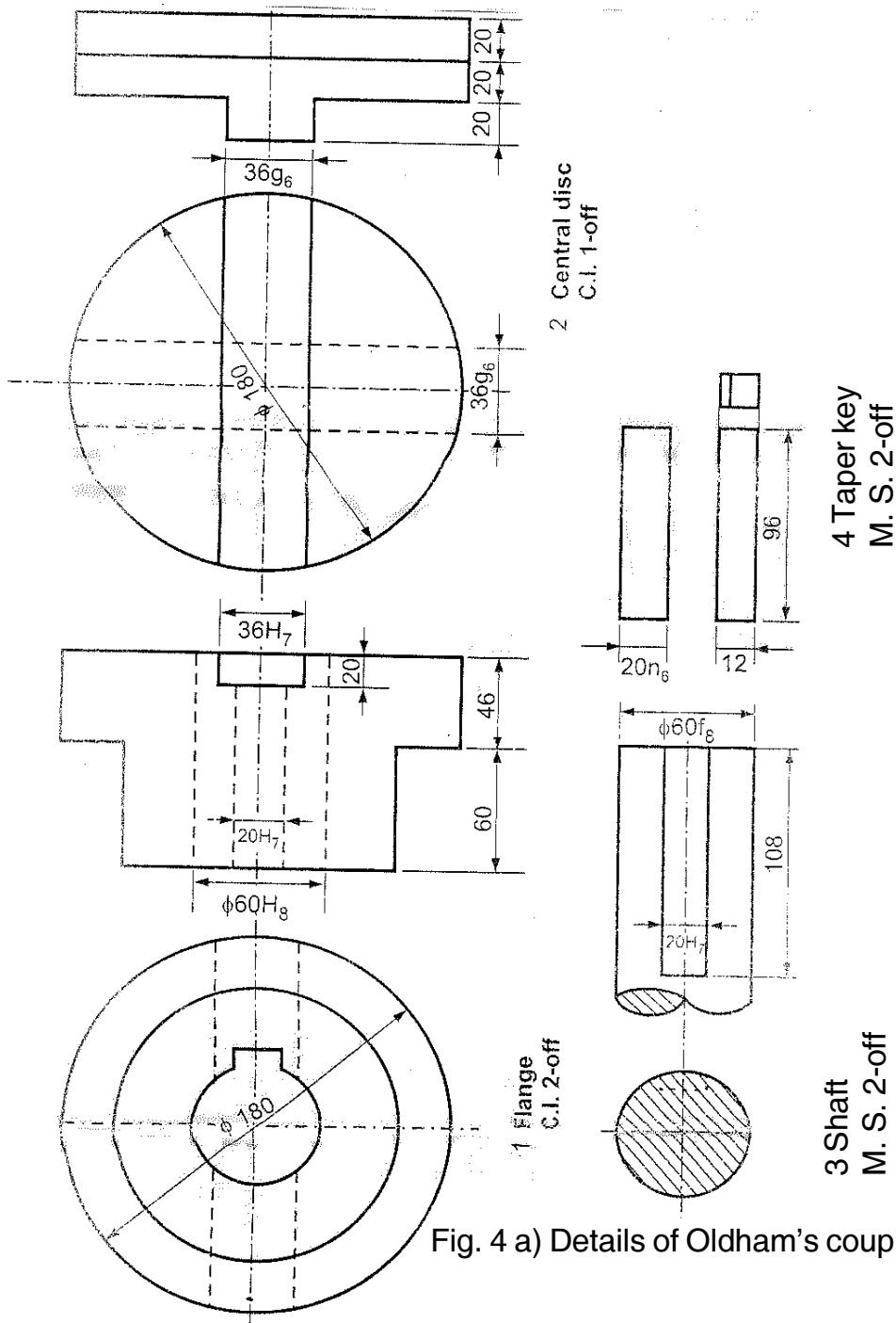
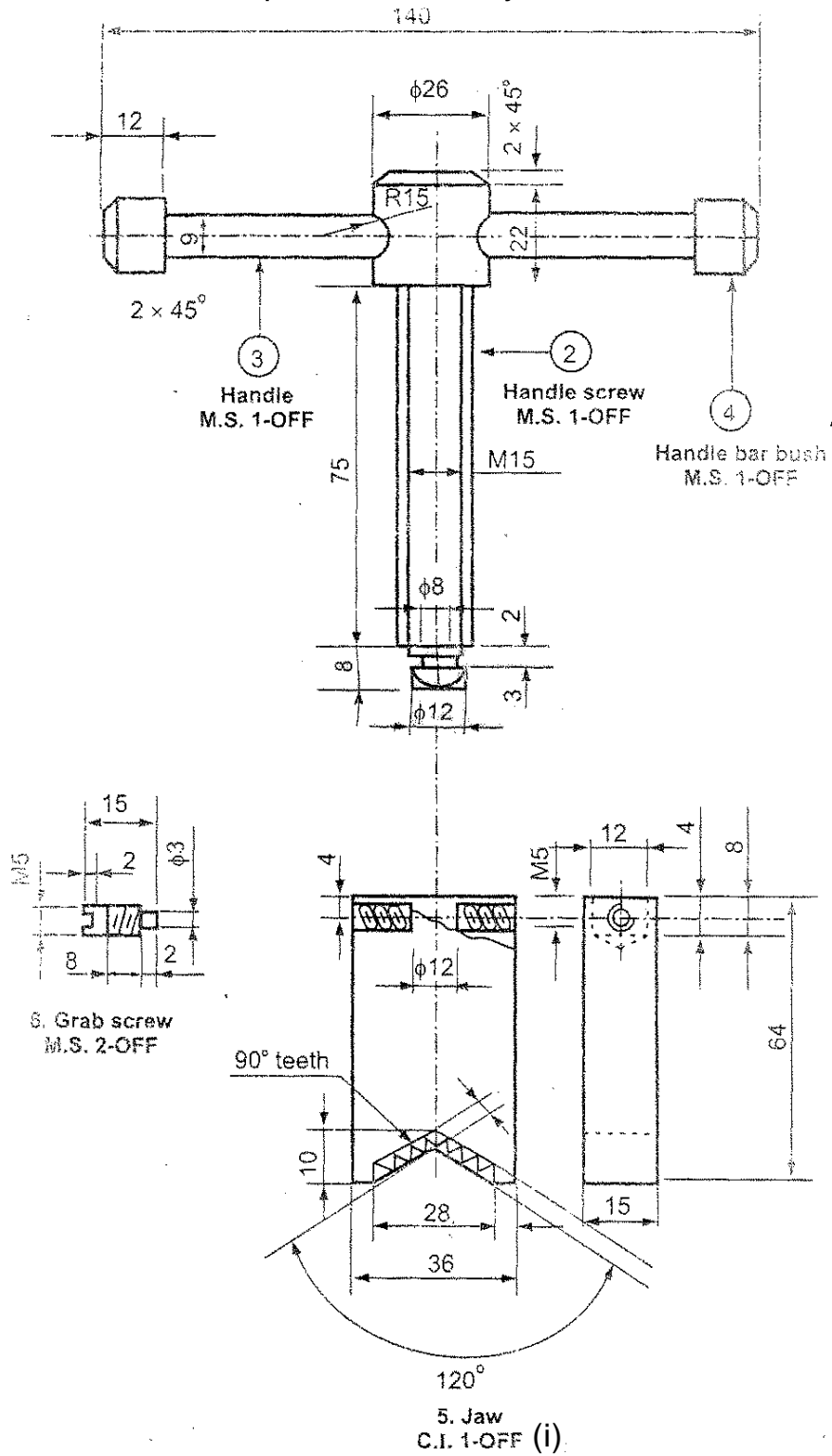


Fig. 4 a) Details of Oldham's coupling



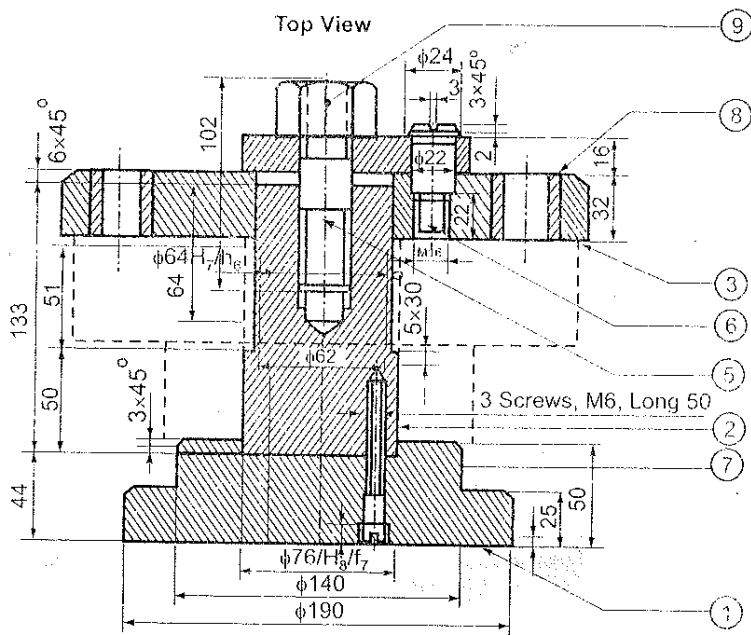
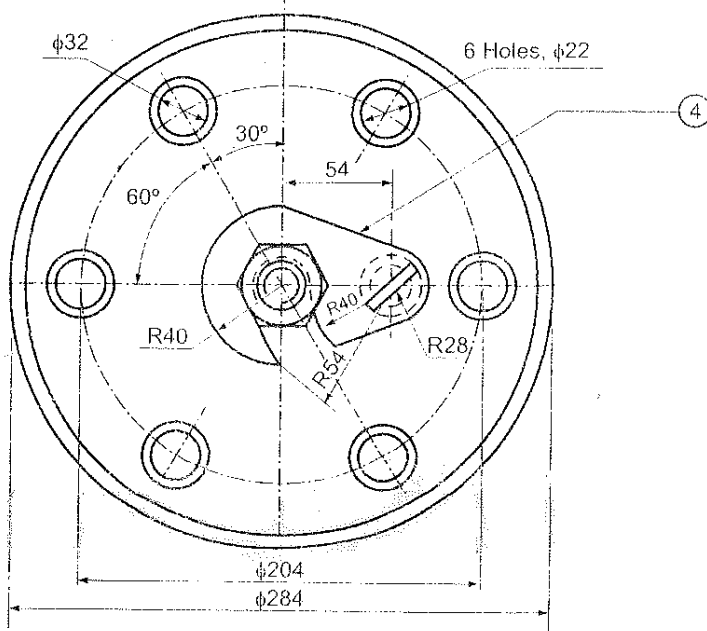
MARKS

b) Figure 4 b) shows details of a pipe vice. Assemble the parts. Draw sectional front view. Indicate the parts on assembly.





b) Figure shows assembly of drill jig. Draw the details.



Sectional Front View

Bill of Material

Sr. No.	Part Name	Material	Quantity
1.	Base plate	C.I.	1
2.	Locating peg	M.S.	1
3.	Jig-plate	C.I.	1
4.	Latch washer	M.S.	1
5.	Stud	M.S.	1
6.	Pin	M.S.	1
7.	Cap screw	M.S.	3
8.	Bush	C.S.	6
9.	Nut	M.S.	1