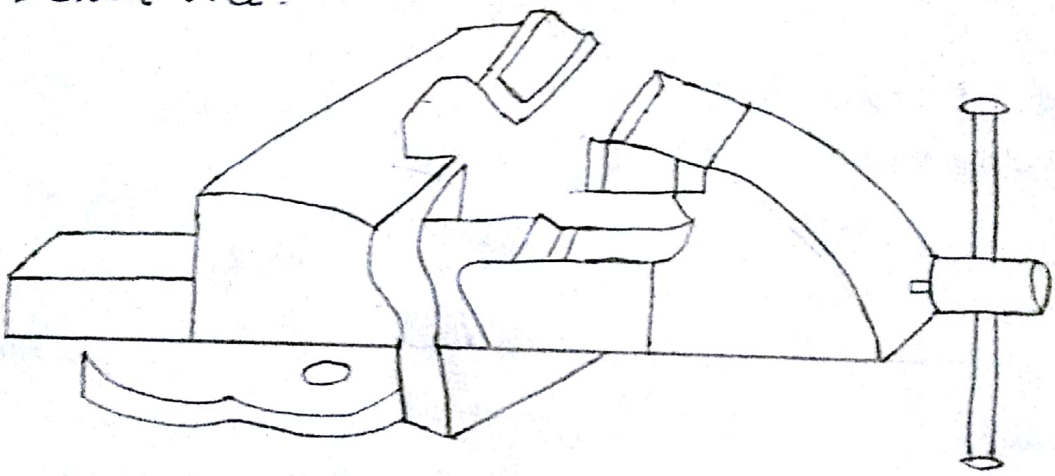
Filling shop

1. Name five important operations that are performed in filling workshop and tools used to perform them.

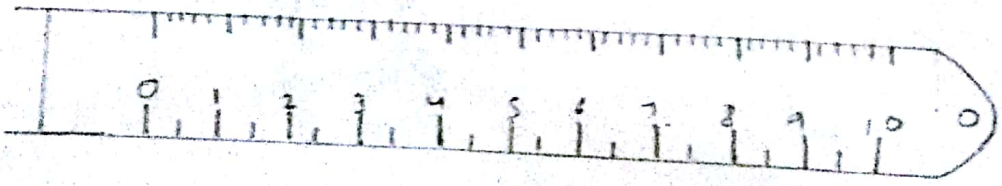
→ i) Filling → flat file (Triangular file, Half Round file.)
ii) Sawing → Hack-saw
iii) Marking → Scriber
iv) Drilling → Pillar drilling Machine
v) Threading → Die and Tap (Rough, Intermediate, Finisher)

2. Draw the following tools used in filling shop with a neat sketch for each of them:

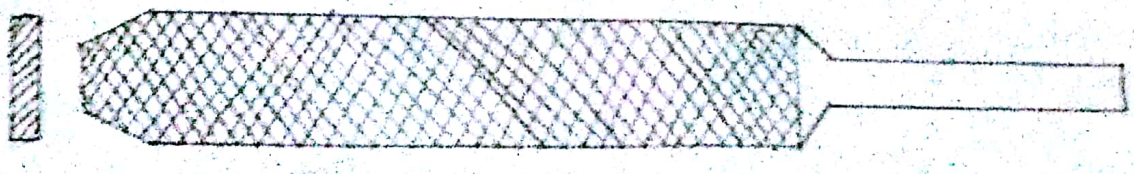
→ i) Bench Vice:



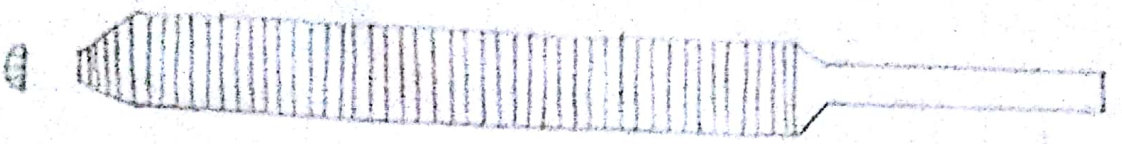
ii) Steel rule



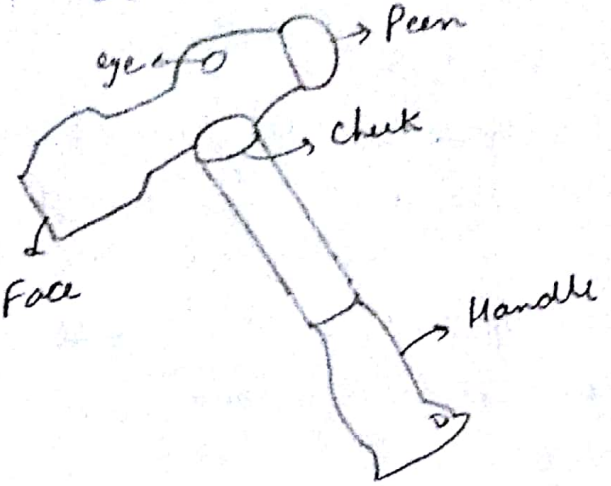
iii) Hole file



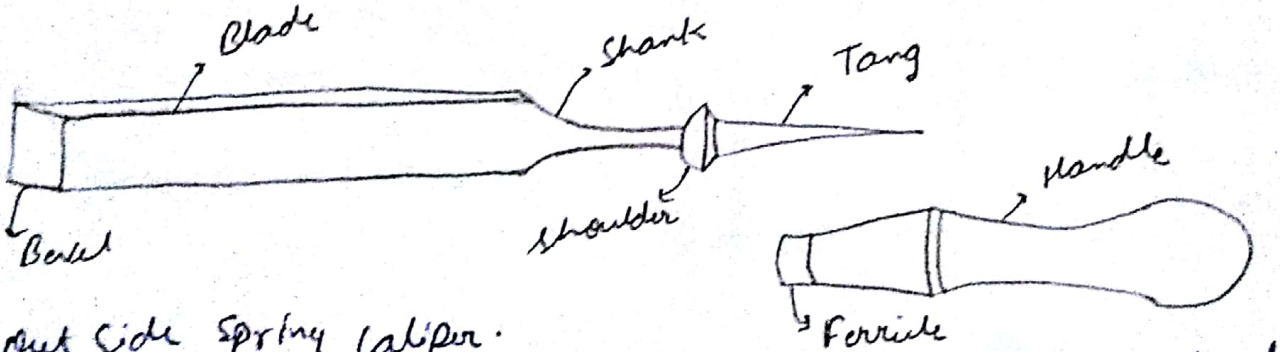
iii) Half Round file



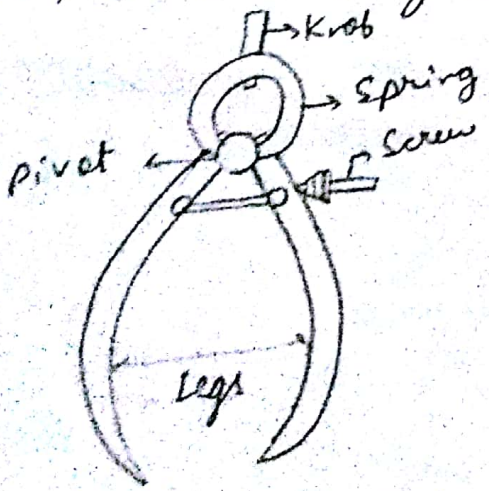
iv) Ball Pean hammer



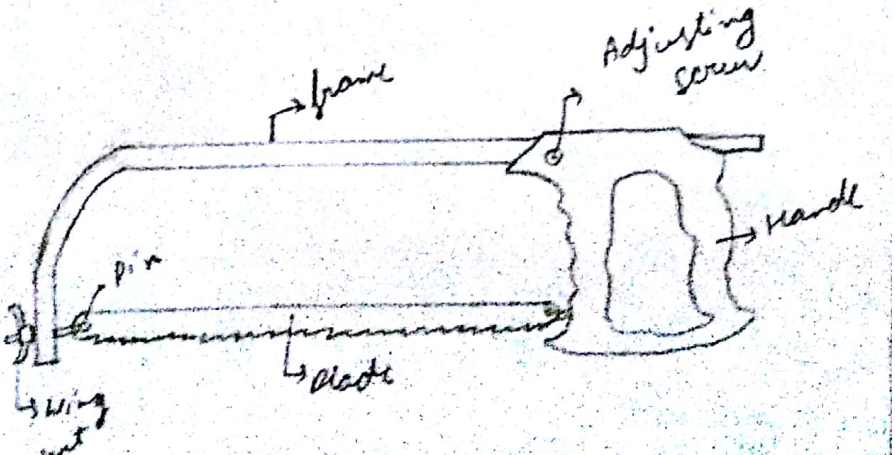
v) Flat chisel



vi) Out Side Spring Caliper.



vii) adjustable frame Hack ~~saw~~ saw



Q3. How do you calculate the drill size for doing internal thread in a job piece?

→ We can calculate proper drill tap diameter using this simple formula:

Tap Drill diameter = (Normal diameter) - (Thread pitch)

$$D = T - 2d$$

D = drill diameter
T = major diameter
d = pitch

Q4. Why are three taps used for doing an internal thread in a job piece?

→ i) Rough ii) Intermediate iii) Finisher

5.) Name the tool used for making an external thread by hand and explain how to make an external thread by hand, using that tool.

→ Die is the tool used for making and external thread by hand.

By using a die, an external thread is made in following ways:

i) place the tool that is to be thread in a bench vice and apply some grease to it

ii) place the die on the top of the rod and turn to create the first rod.

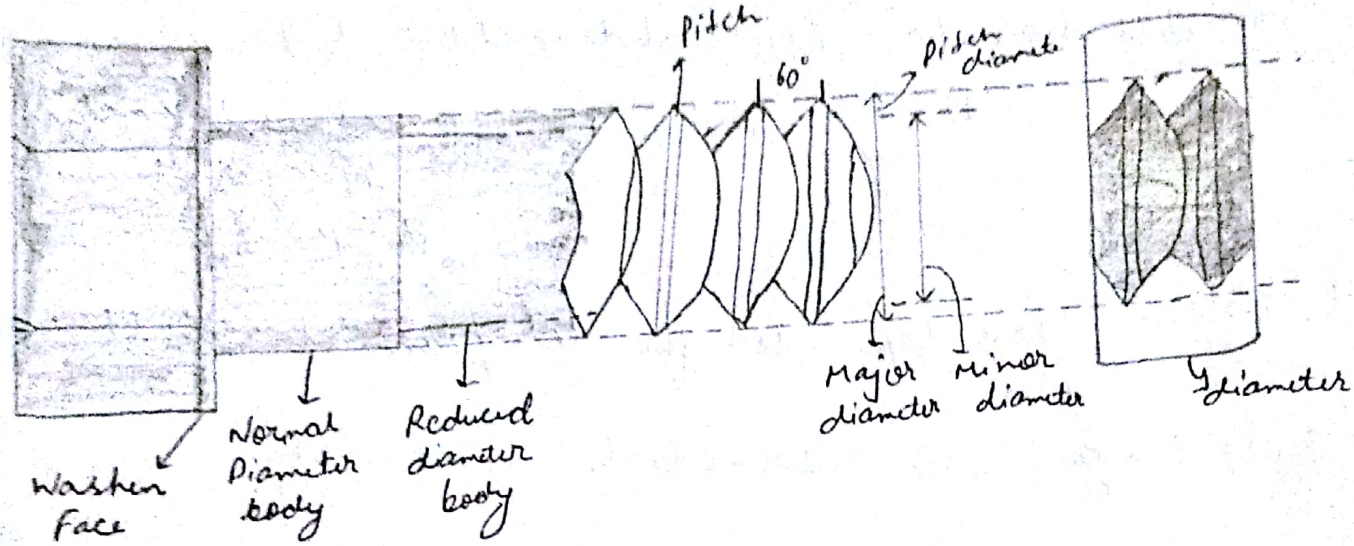
iii) Once a grip on the material has been made, turn the die a full rotation into the material and then turn a quater, turns back to remove scraps.

iv) Keep turning the die until the depth of the thread is achieved.

v) Check the threading using an appropriate nut.

Q6. Draw a typical thread and mark major diameter, minor diameter, Pitch diameter and depth of thread.

→



~~Q.7. Who~~

Q7. What do the abbreviation means - BSW, BSP, TPI as stand for in relation to thread?

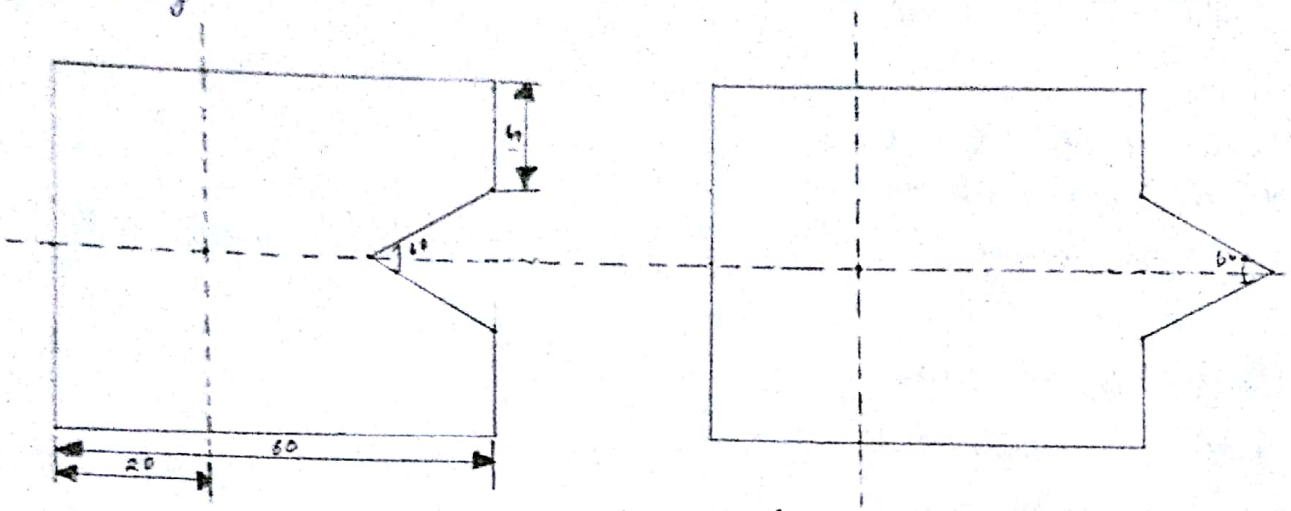
→ a) BSW → British Standard Whitworth, it was world's first national screw thread standard

b) BSP → British standard Pipe, it is a familiar of technical standard from screw thread that has been adopted for interconnecting and sealing pipes and fitting by an external thread with internal thread.

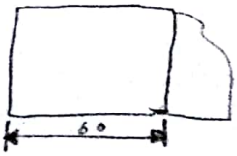
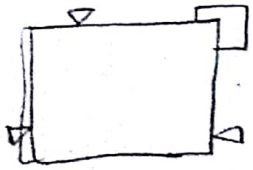
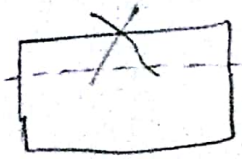
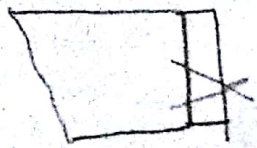
c) TPI → Thread per Inch, it is simply a count of a number of threads per inch measured along the length.

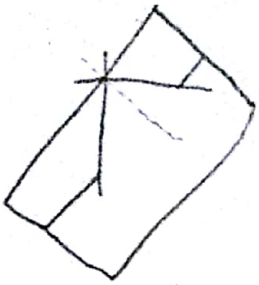
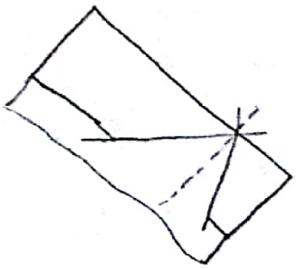
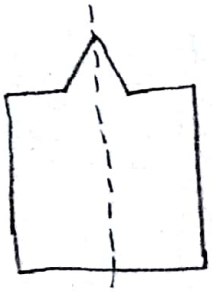
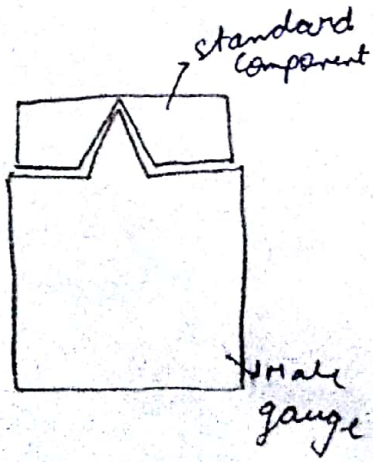
Job: 1

Name of Job: Making a Male or female gauge from MS plane.
Raw Material: Mild steel plate.
Raw Material Size: 60mm length x 50mm width x 5mm thickness
Job Diagram:

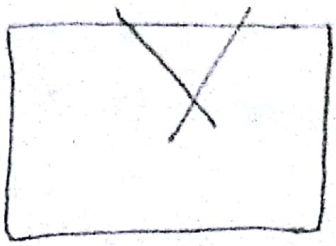
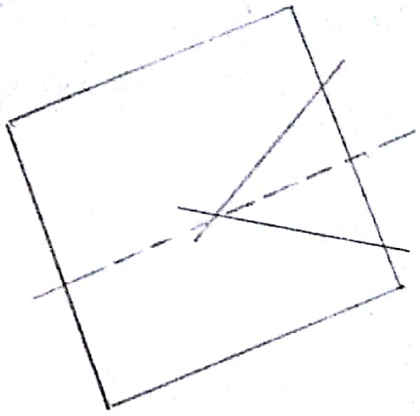
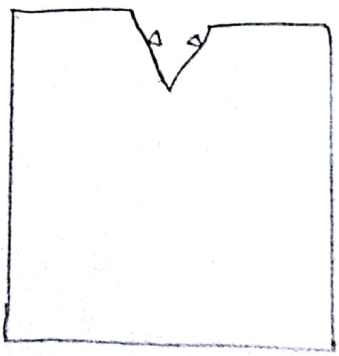
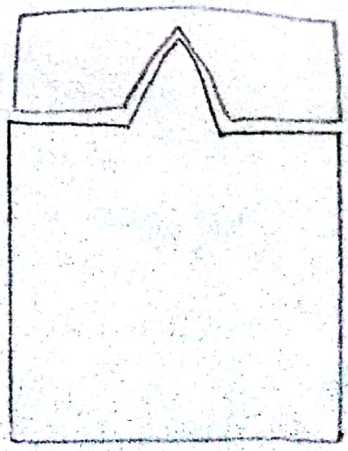


Sequence of operation for male gauge

S.No	Operation	Schematic diagram	Tools Required
1.	Filling, making a Parting of required length		rule, Try square, Bench vice, flat file.
2.	Marking & filling three edges for parallelism & squareness.		flat file, Try square
3.	Surface pre-penation for marking	----------	chalk, water
4.	Marking construction line as required		Scak, protector, Scriber, centre punch, Hammer
5.	Sawing along marking lines upto required as vertically.		Hack saw

6.	Sawing along marking lines for other side upto required length as vertically.		Hack saw
7.	Sawing the 30° inclined surface up to required length.		Hacksaw
8.	Sawing the other side 30° inclined surface upto required length.		Hack saw
9.	Filling all saw-cut edges for ~~first~~ final finishing.		Hacksaw flatfile
10.	Checking.		Standard component.

Sequence of operation female Gauges:

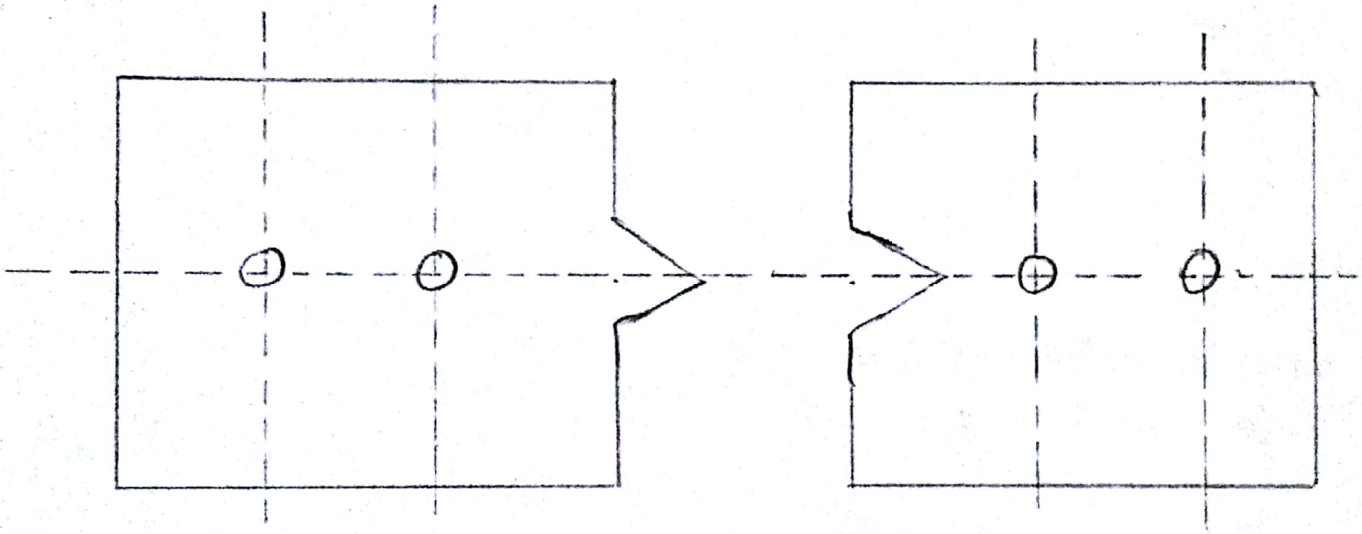
Sl.No.	operation	Schematic diagram	Tool Required
1.	marking construction lines as required		Scale, protector, Scriber, Centre Punch, Hammer
2.	Sawing the 30° inclined Surface upto required length.		Hack saw
3.	Same operation as SI No. 2 for other side of U		Hack saw
4.	filling all saw cut edges for final finishing		flat file
5.	Checking		Standard component

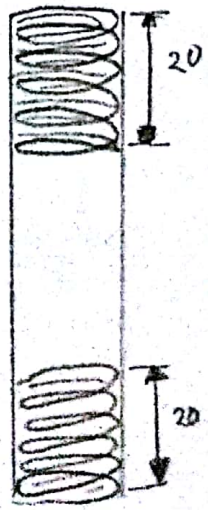
Job-2

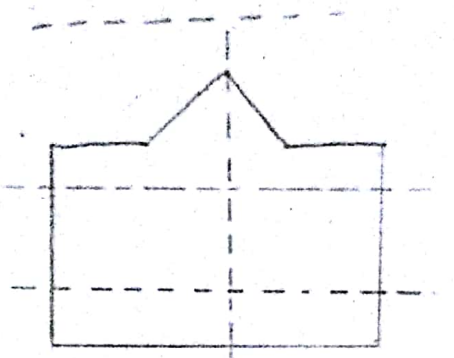
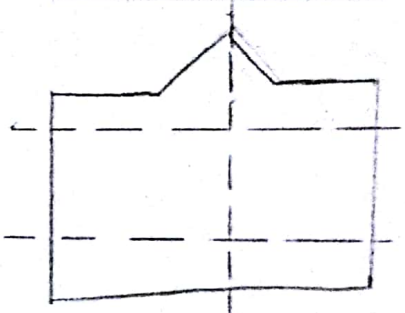
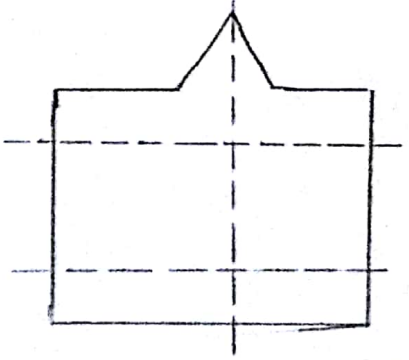
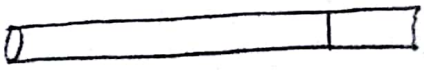
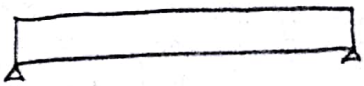
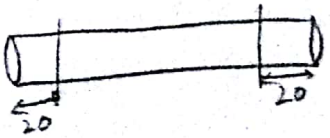
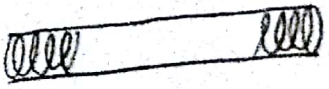
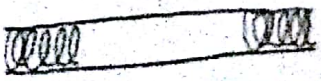
Name of Job : Making internal threads on mark or female gauge plate & external threads on Ms Rod to fit the internal thread.

Raw Materials: Mild steel plate and Ms Rod

Raw material size: 60mm length x 50mm width x 5mm thick and Ms Rod of 100 mm long x 8mm dia.





Sl. No.	Operation	Schematic diagram	Tools required
1.	Surface preparation for making		chalk, water
2)	Location points A & B marking suitable construction lines		Scale, divider, centre punch, Hammer.
3)	mak 2 Nos. of holes.		Scale, divider Centre, punch, Hammer
4)	Tapping the drill hole A & B for making the internal thread of diameter 8 mm.		Twist Drill, Drilling machine, Tap and Tap wrench.
5)	Filling, Marking & parting of required length of MS Rod.		Hack saw
6)	filling edges of rod.		Try Square, Scriber, Hack saw
7)	marking the external th. read at two ends of rod with 20 mm each.		Rough file, Try Square
8)	Die operation for making external thread at both end.		Die & Die-stock
9)	checking for thread.		By thread gauge.