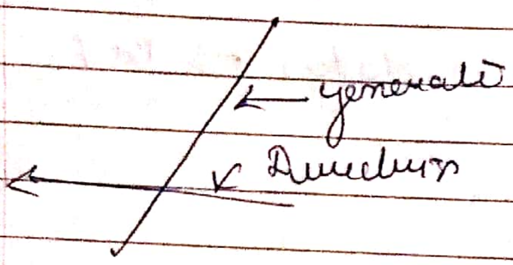
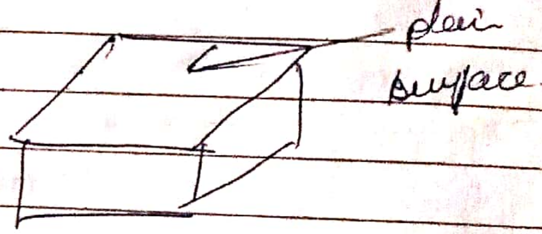
Mid Sem

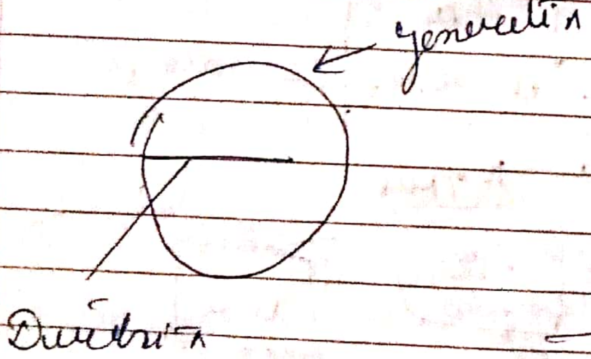
Name :- Jutul Pawan — Roll no :- 1916083

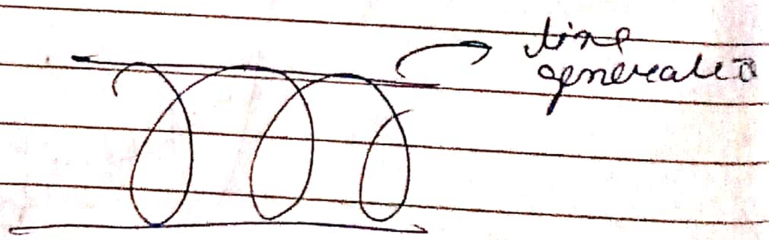
Sec :- B — Subject :- MMT

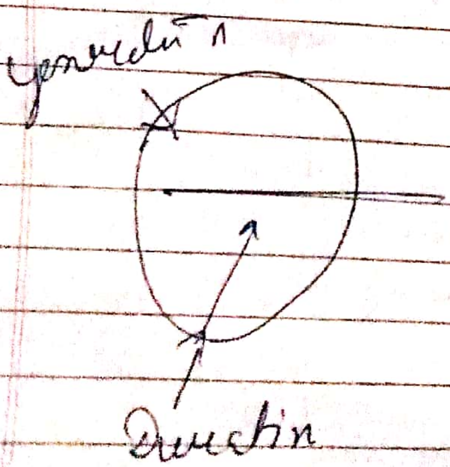
Q1 A:- A generatrix is a a point, curve or surface that, when moved along a given path, generates a new shape. The path directly the motion of the generator's motion is called as directrix

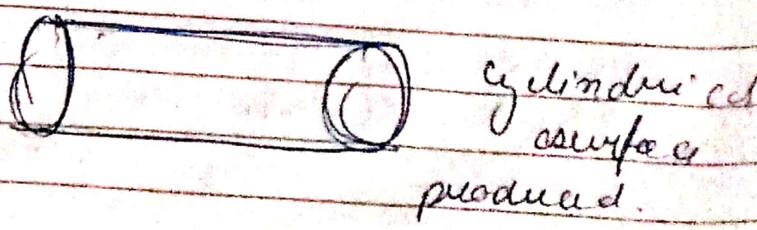












Jutul Pawan

Roll no :- 1916083

Name :- Jitul Pegu

Sec :- B

Q1 ~~Q2~~ ~~I~~ I Lead screw :-

Lead screw convert motor rotation into linear translation. They offer axial stiffness and smooth displacement

II) Tail stocks

Tail stock is a device used to apply support to the rotatory axis of a workpiece which is being machined

~~III) Carriage :- Carriage is a ~~device~~ a part of lathe which is used to manually position and ~~hand feed the~~ .~~

III) Carriage

It holds the tools & provides movement of tools in both cross and longitudinal direction.

IV) Chuck :- is a specialized type of clamp which is used to hold an object with radial symmetry

Jitul Pegu

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Q3 Ans A quick return mechanism is an apparatus to produce a reciprocating motion in which the time taken for travel in return stroke is less than the forward stroke ~~a couple~~ It is driven by a circular motion source typically a motor.

Quick return is a common feature of Tools in which action is performed in only one direction of stroke, such as shaper and powered saw, because it allow less time spent on returning tool to its initial position.

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Q1 A (a)

The mechanism is Automatic feed mechanism or Ratchet & Pawl mechanism

The important feature of this mechanism is

→ In its operation a pawl and spring are connected that helps to Rotate the Ratchet wheel. so no human work required

→ It works on the basis of vibrational motion.

To change the direction of feed by the help of Knob. The knob are rotate by angle of 180° then the whole system will reverse the direction.

Q1 A (c)

we have,

Lead (L) = 4 mm. (shorter thread)

for double start thread

lead = 2 × pitch

∴ pitch = $\frac{4 mm}{2}$ = 2 mm.

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given,

d = 40mm (diameter)

Lead screw pitch = 6 mm.

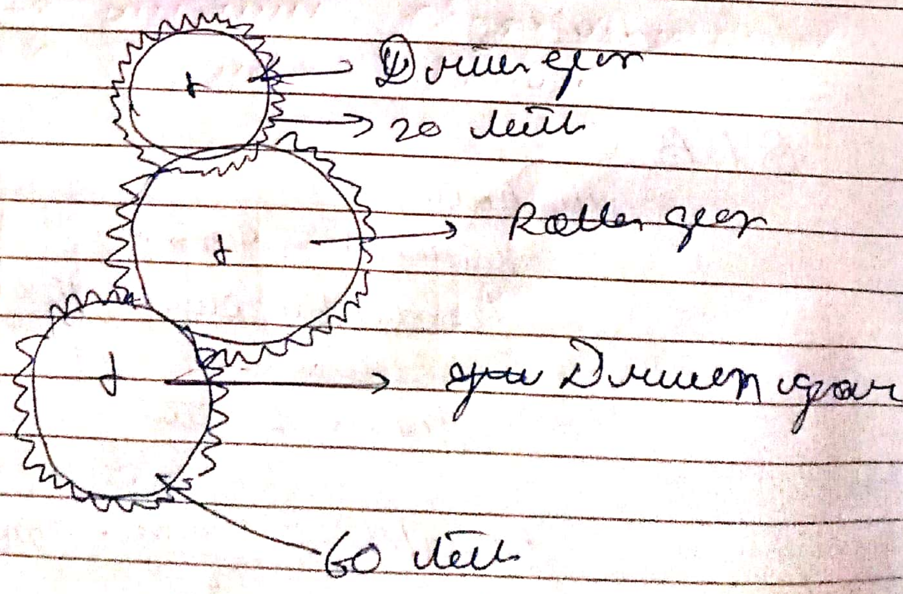
Now,

$$\frac{\text{Driver gear Teeth}}{\text{Driven gear Teeth}} = \frac{\text{Pitch of screw to be cut}}{\text{pitch of the lead screw}}$$

$$= 2/6 = \frac{1}{3}$$

In the lathe, gear are available in range from 20 to 120 with 120 value gear.

$$\therefore \frac{\text{Driver gear teeth}}{\text{Driven gear teeth}} = \frac{1\times 20}{3\times 20} = \frac{20}{60}$$



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Name: Chetan Kumar
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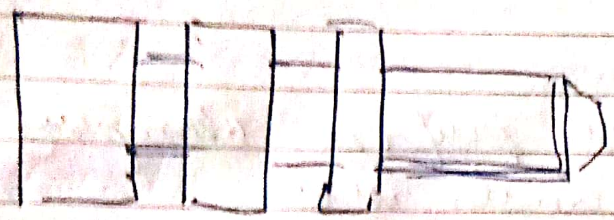
A possible combination would be 20 teeth of driver gear & 60 teeth of driven gear.

Q2 A.



This observation can be done using lathe machine & suitable materials for this is mild steel.

Steps

→ Cut the work of required size using saw

→ Remove unwanted material using facing & make the work centered we will get a work of 200 mm.

→ Using the turning we will decrease the diameter of work for first 120 mm to 40 mm

then we rearrange the tool & decrease the diameter 2.5mm parts

Chetan

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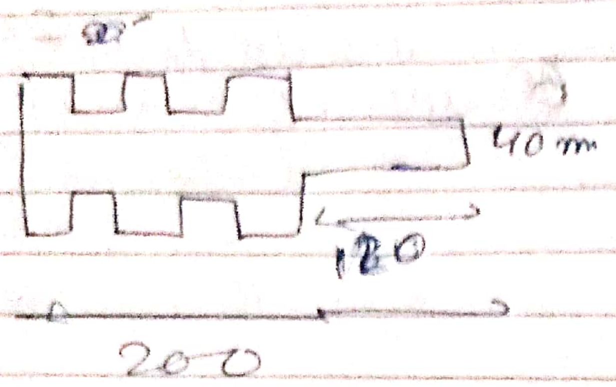
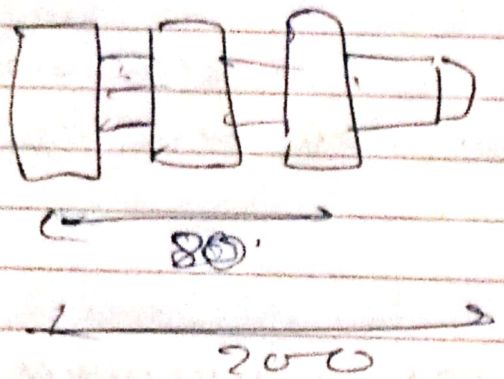
Name :- Jilid Pravn

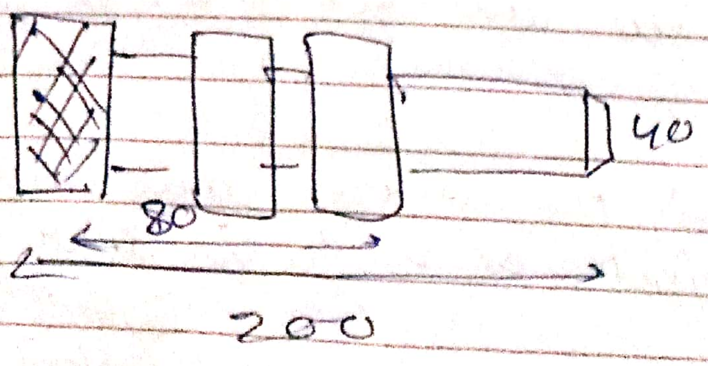
Sec :- B



→ we will perform champering to the small diameter side



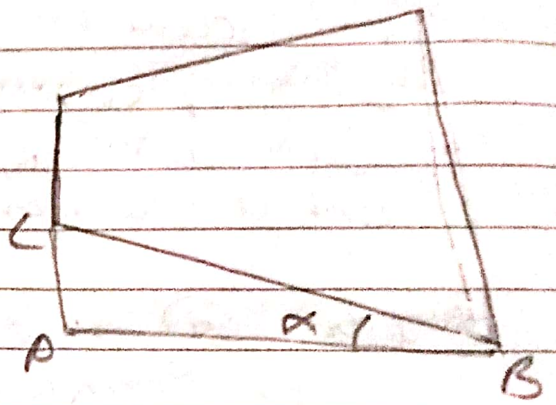
⇒ Then we will change the side of work & perform knurling



Jilid Pravn

Q1 b) (2) $l = 100 \text{ mm}$, $D_1 = 50 \text{ mm}$, $d = 45 \text{ mm}$

$$\sin \alpha = \frac{BC}{AC}$$



$$= \frac{D-d}{2l}$$

$$= \frac{50-45}{2(100)}$$

$$\sin \alpha = \tan \alpha = 2.5 \times 10^{-2} = \alpha$$

→ taper angle will happen at 2α

$$2\alpha = 2.5 \times 10^{-2} \times 2$$

$$\Rightarrow \alpha = \frac{0.05°}{2}$$

tail stock off set, L = distance between centre

$$x = L \frac{(D-d)}{2l} = \frac{L \cdot 2.5 \times 10^{-2}}{\text{[illegible]}}$$

[signature]