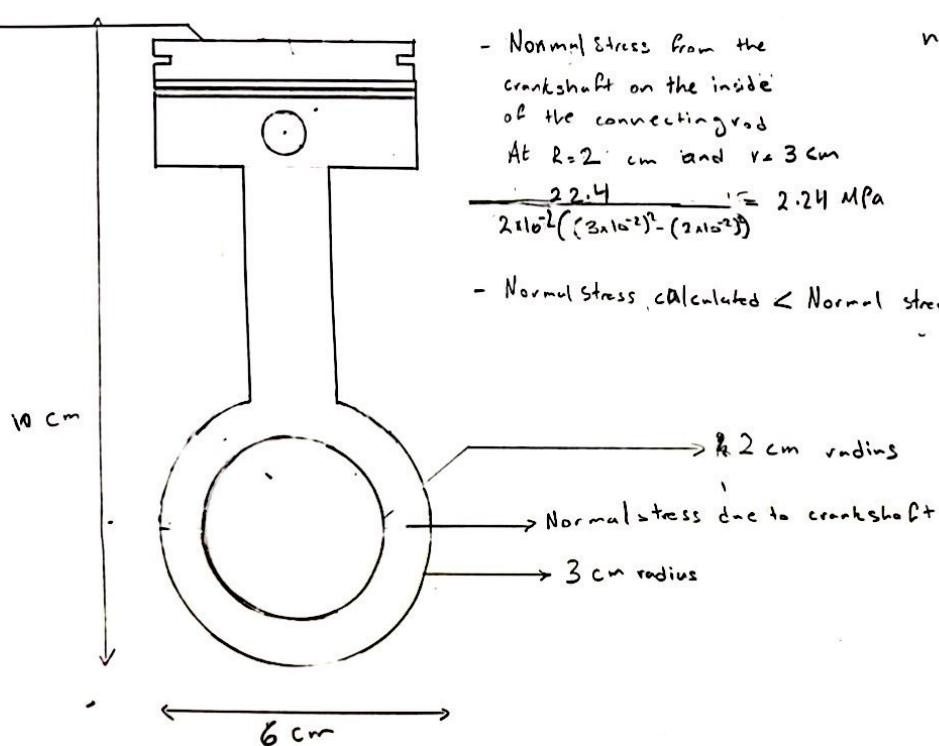


radius of the piston 3 cm

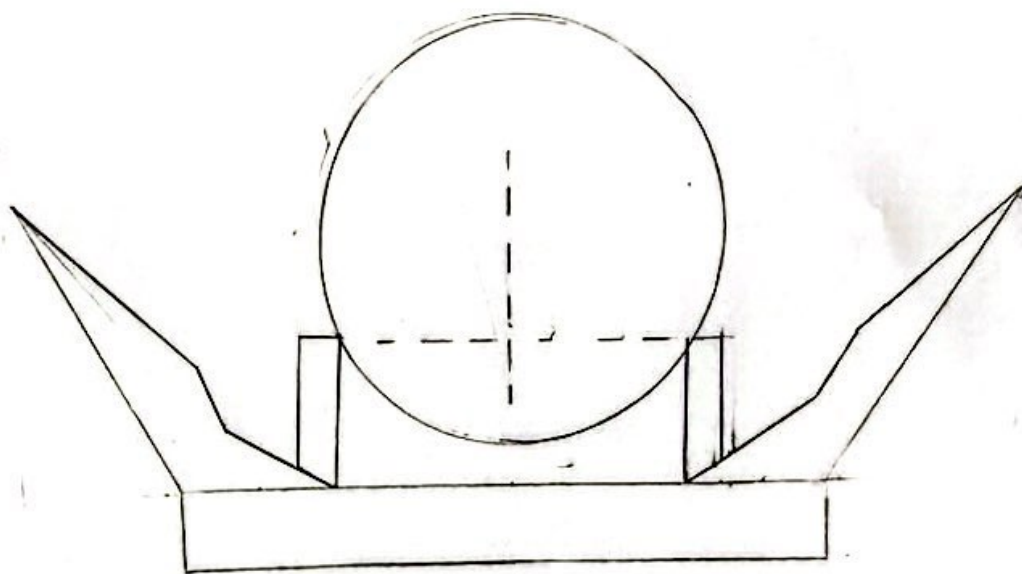


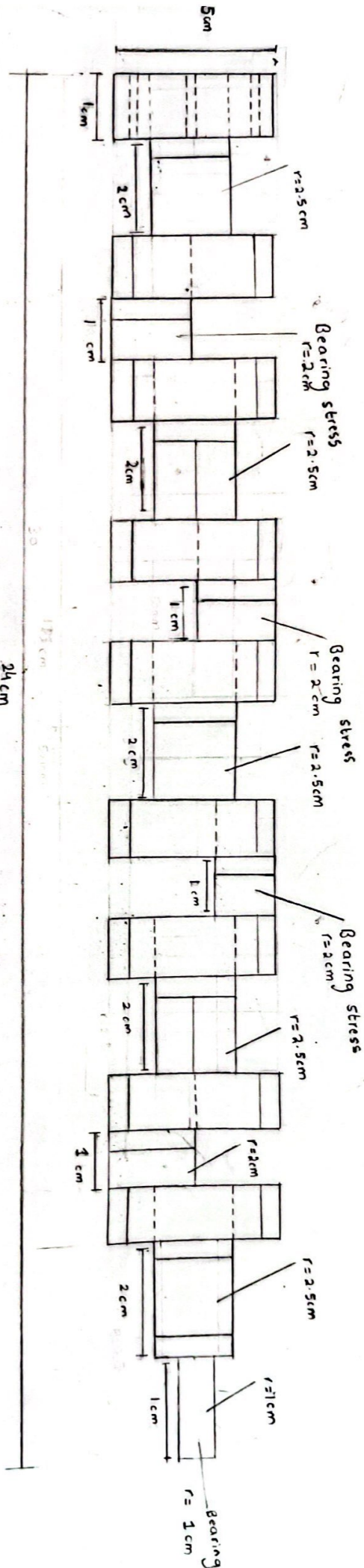
- Normal stress from the crankshaft on the inside of the connecting rod
At $R = 2$ cm and $r = 3$ cm

$$\frac{22.4}{2 \times 10^2 ((3 \times 10^{-2})^2 - (2 \times 10^{-2})^2)} = 2.24 \text{ MPa}$$

normal allowed = 3.72 MPa

- Normal stress calculated < Normal stress allowed





power = 250 w

RPM = 4000

Torque = 1.79

* Force from crankshaft

$$1.79 = F \times 2 \times 10^{-2} \quad F = 89.5 \text{ N}$$

Bearing from crank on connecting rod

* Force distribution as 4 pistons go up and 4 pistons coming down

$$\frac{F}{4} = 22.4 \text{ N}$$

Bearing calculated

$$\frac{22.4}{2 \times 10^{-2} \times 4 \times 10^{-2}} = 28 \text{ kPa}$$

Bearing calculated < Bearing allowed

