

[Home](#) > In a slider-crank mechanism, the crank is 480 mm long and rotates at 20 rad/sec in the counter-clockwise direction.....

In a slider-crank mechanism, the crank is 480 mm long and rotates at 20 rad/sec in the counter-clockwise direction.....

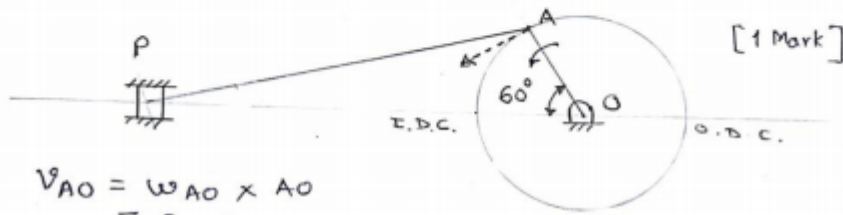
Question:

In a slider-crank mechanism, the crank is 480 mm long and rotates at 20 rad/sec in the counter-clockwise direction. The length of the connecting rod is 1600 mm. when the crank turns 60° from the inner-dead centre. Determine the velocity of the slider by relative velocity method.

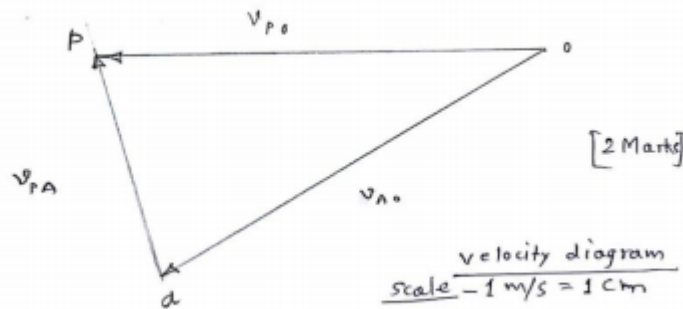
Answer:

Q 3(a) Slider Crank mechanism
 Crank = 480 mm long = $OA = 0.480$ m
 Connecting rod = 1600 mm long = AP
 $\omega_{AO} = 20$ rad/s \nearrow

scale 1:20



$$\begin{aligned} v_{AO} &= \omega_{AO} \times AO \\ &= 20 \times 0.480 \\ &= 9.6 \text{ m/s} \end{aligned}$$



Velocity of slider = $v_{PO} = \vec{PO} = 9.5$ m/s [1 mark]