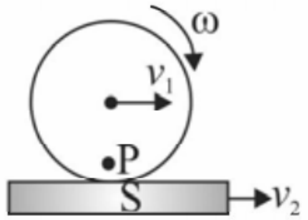
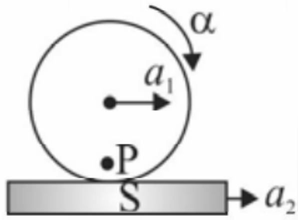
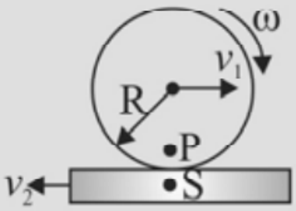
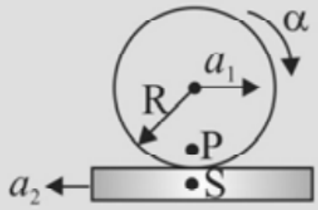
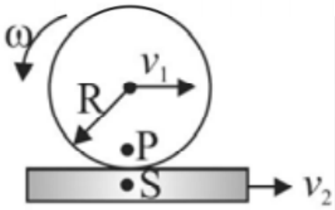
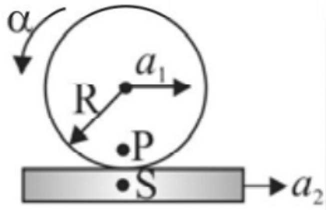
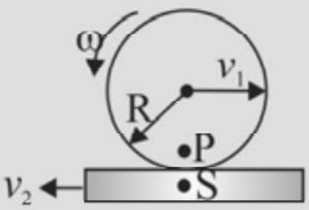
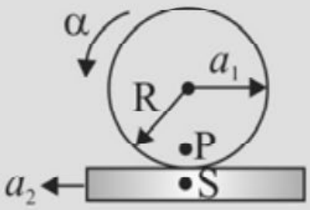
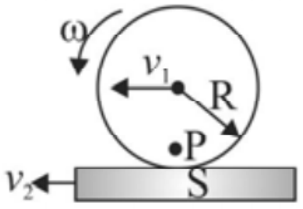
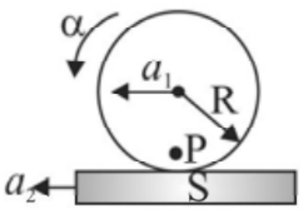
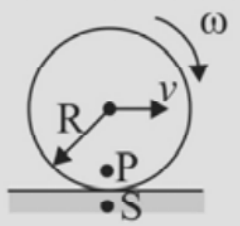
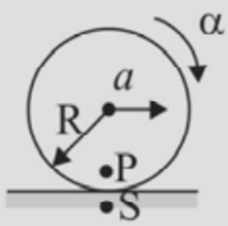
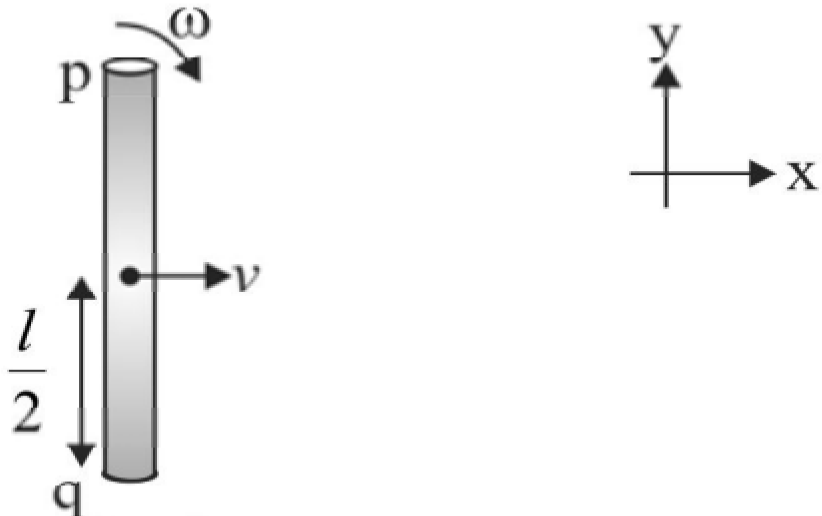
MOCK COVER

TEST TITLE DESIGN

in Association with **Name Here**

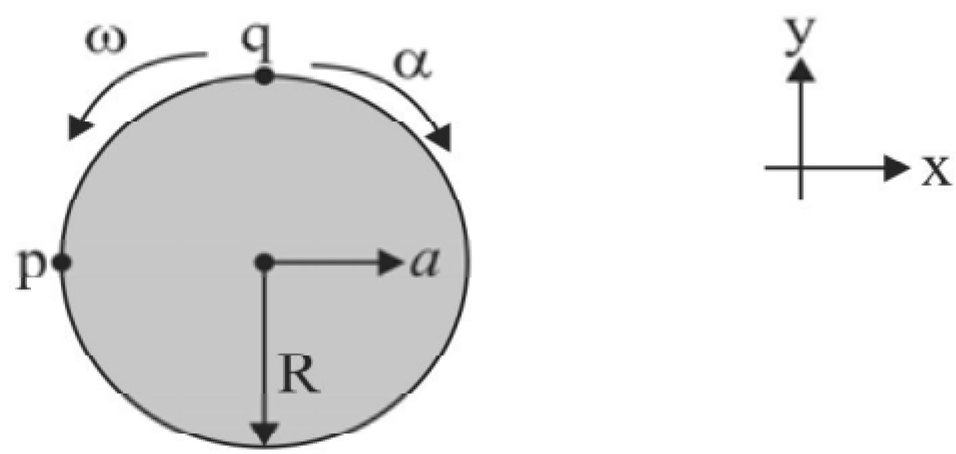
Condition for pure rolling			
When bodies have velocities		**When bodies have accelerations**	
	$\vec{v}_P=\vec{v}_S$ $(v_1-R\omega)\hat{i}=v_2\hat{i}$ $v_2=v_1-R\omega$		$\vec{a}_P=\vec{a}_S$ $\vec{a}_P=a_1\hat{i}-R\alpha\hat{i}, \vec{a}_S=a_2\hat{i}$ $a_2=a_1-R\alpha$
	$\vec{v}_P=\vec{v}_S$ $(v_1\text{-}R\omega)\hat{i}=\text{-}v_2i$ $(R\omega-v_1)=v_2$		$\vec{a}_P=\vec{a}_S$ $a_1\hat{i}\text{-}R\alpha\hat{i}=\text{-}a_2i$ $R\alpha-a_1=a_2$
	$\vec{v}_P=\vec{v}_S$ $(v_1+R\omega)\hat{i}=v_2i$ $(R\omega+v_1)=v_2$		$\vec{a}_P=\vec{a}_S$ $a_1\hat{i}+R\alpha\hat{i}=a_2i$ $a_1+R\alpha=a_2$
	$\vec{v}_P=\vec{v}_S$ $(v_1+R\omega)\hat{i}=\text{-}v_2i$ $\text{-}(v_1+R\omega)=v_2$		$\vec{a}_P=\vec{a}_S$ $a_1\hat{i}+R\alpha\hat{i}=\text{-}a_2i$ $-(a_1+R\alpha)=a_2$

	$\vec{v}_P=\vec{v}_S$ $-v_1\hat{i}+R\omega\hat{i}=-v_2 i$ $v_1-R\omega=v_2$		$\vec{a}_P=\vec{a}_S$ $-a_1\hat{i}+R\alpha\hat{i}=-a_2\hat{i}$ $a_1-R\alpha=a_2$
	$v_1+R\omega=\vec{v}_S$ $v_1+R\omega\hat{i}=0$ $(v_S=0)$ $v=R\omega$		$\vec{a}_P=\vec{a}_S$ $a_1\hat{i}-R\alpha\hat{i}=0\,(a_S=0)$ $a=R\alpha$



(Rod)

Point	$\vec{v}_{CM}$	$\vec{v}_t$	Resultant velocity
p	$v\hat{i}$	$\frac{l}{2}\omega\hat{i}$	$\left(v+\frac{l}{2}\omega\right)\hat{i}$
q	$v\hat{i}$	$-\frac{l}{2}\omega\hat{i}$	$\left(v-\frac{l}{2}\omega\right)\hat{i}$



(Disc)

Point	$\vec{a}_{CM}$	$\vec{a}_t$	$\vec{a}_r$	Resultant acceleration
p	$a\hat{i}$	$R\alpha\,\hat{j}$	$R\omega^2\hat{i}$	$(a+R\omega^2)\hat{i}+R\alpha\hat{j}$
q	$a\hat{i}$	$R\alpha\,\hat{i}$	$-R\omega^2\,\hat{j}$	$(a+R\alpha)\hat{i}-R\omega^2\,\hat{j}$