

**MECHATRONICS**

$r = 30\text{mm}$   
 $2\pi r = 2 \times 3.142 \times 30\text{mm}$   
 $= 188.52$

Rise (Uniform velocity)  
 $\frac{90^\circ}{360} \times 188.52 = 47.13$

Fall (Simple harmonic motion)  
 $\frac{60^\circ}{360} \times 188.52 = 31.42$

Dwell  
 $\frac{60^\circ}{360} \times 188.52 = 31.42$

Fall (Uniform acceleration)  
 $\frac{60^\circ}{360} \times 188.52 = 31.42$

Fall (Uniform retardation)  
 $\frac{90^\circ}{360} \times 188.52 = 47.13$

