02. Calculate the power of a crane in watts, which lifts a mass of 100 kg to a height of 10 m in 20s.

Sol. $P = \frac{WD}{\text{time}} = \frac{FS\cos\theta}{t} = \frac{mg \cdot h\cos\theta}{t}$

As the direction of displacement (height) and force applied by crane are same.

So $\theta = 0^0$

F = mg = 100 $\times$ 10 h = 10 m t = 20 s

$P = \frac{100\times10\times10\cos0^\circ}{20} = 500$ Watts