

The minimum force require to separate a light glass plate of perimeter 5m from a water surface is (surface tension of water 70 into 10 raise to power minus 3 N /m)

**Solution**

The capillary force that acts on light glass plate is

$$F_{cap} = P\sigma \cos \gamma,$$

where  $P$  - perimeter of plate,  $\sigma$  - surface tension,  $\gamma$  - contact angle.

The contact angle of water on clean glass is very small, and is commonly taken as  $0^\circ$ .

The minimum force require to separate a light glass plate is equal and opposite to capillary force:

$$F = F_{cap} = 5\text{m} * 70 * 10^{-3} \frac{N}{m} * \cos 0^\circ = 0.35 N.$$

**Answer: 0.35 N.**