



PHYSICS

BOOKS - CENGAGE PHYSICS (HINGLISH)

MECHANICAL PROPERTIES OF FLUIDS

Question Bank

1. A rectangular vessel when full of water takes 10 minutes to be emptied through an orifice in

its bottom. How much time will it take to be emptied when half filled with water



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2. A block of wood has a mass of $25g$. When a $5g$ metal piece with a volume of $2cm^3$ is attached to the bottom of the block, the wood barely floats in water. What is the volume V of the wood?



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3. Capillary tubes of length l and $2l$ are connected in series, their radii are r and $2r$ respectively. If stream line flow is maintained and pressure difference across first and second capillary tubes are P_1 and P_2 respectively then find the ratio $\frac{P_1}{P_2}$.



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4. A concrete sphere of radius R has cavity of radius r which is packed with sawdust. The specific gravities of concrete and sawdust are

respectively 2.4 and 0.3 for this sphere to float with its entire volume submerged under water. Ratio of mass of concrete to mass of swadust will be



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5. A film of water is formed between two straight parallel wires each 10cm long and at a separatin 0.5cm . Calculate the work required to increase 1mm distance between wires.

Surface tension $= 72 \times 10^{-3} \text{N}/\text{m}$.



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