

INTERNATIONAL INDIAN SCHOOL BURAIDAH

Worksheet –PHYSICS

Chapter 10 : Mechanical properties of fluid

1. Explain why
 - (a) The angle of contact of mercury with glass is obtuse, while that of water with glass is acute.
 - (b) Water on a clean glass surface tends to spread out while mercury on the same surface tends to form drops. (Put differently, water wets glass while mercury does not.)
 - (c) Surface tension of a liquid is independent of the area of the surface
 - (d) Water with detergent dissolved in it should have small angles of contact.
 - (e) A drop of liquid under no external forces is always spherical in shape
2. What is Bernoulli's theorem? Show that sum of pressure, potential and kinetic energy in the streamline flow is constant?
3. In a horizontal pipeline of uniform area of cross – section, the pressure falls by 5 N/m² between two points separated by a distance of 1 Km. what is the change in kinetic energy per Kg of oil flowing at these points? Given Density of oil = 800 Kg/m³ ?
4. State the principle on which Hydraulic lift work and explain its working?
5. A metallic sphere of radius 1×10^{-3} m and density 1×10^4 kg/m³ enters a tank of water after a free fall through a high 'h' in earth's gravitational field. If its velocity remains unchanged after entering water, determine the value of h. Given: - Co-efficient of viscosity of water = 1×10^{-3} Ns/m² ; g = 10 m/s²; density of water = 1×10^3 kg/m³ ?

6. What is equation of continuity? Water flows through a horizontal pipe of radius, 1cm at a speed of 2m/s. What should be the diameter of nozzle if water is to come out at a speed of 10m/s?
7. Write pascal law. Unit and dimension
8. Expression for excess pressure inside a spherical bubble.
9. Explain Application of Bernoulli's principle
10. What is capillary