1. Two capillary tubes of equal length and inner radii 2r and 4r respectively are added in series and a liquid flows through it. If the pressure difference between the ends of the tube of the whole system is 8.5 cm of mercury, find the pressure difference between the ends of the first capillary tube

2. Two equal drops of water falling through air with a steady velocity v. If the drop[s coalesced, What will be the new steady velocity

3. Water stands at a height H in a tank whose sides are vertical. An orifice is made at the depth h on one o the walls. The emerging stream of water strikes at a distance R from the tank on the floor. Find the relation for R in terms of h, and H. When R is maximum, how h and H are related

4. Water flows through a tapering horizontal tube of radii of cross section r_1 =20 and r_2 = 10 cm. The velocity of water at the points for the radius of cross section r_1 is v_1 = 2 m/sec. Find the force imparted by the emerging water at the other end of the tube

5. The rate of steady volume of water through a capillary tube of length l and radius r under a pressure difference of P is V. This tube is connected with another tube of same length but half the radius in series. Then find the rate of increase of steady volume through them is (the pressure difference across the combination is P).

6. The velocity of water in a river is 18 km/h near the surface. If river is 5 m deep, find the shearing stress between the horizontal layers of water. The coefficient of viscosity of water = 10^{-2} poise.

7. If terminal speed of a sphere of gold (density = 19.5 kg/m^3) is 0.2 m/sec in a viscous liquid (density = 1.5 kg/ m^3). Find the terminal speed of a sphere of silver(density = 10.5kg/m^3) of the same size in the same liquid

8. There is a hole in the bottom of the tank having water. If total pressure at the bottom is 3 atm(1 atm = 10^5 Nm^{-2}), then find the speed of the water flowing through the hole

9. At what speed the velocity head of water is equal to pressure head of 40 cm of Hg

10. Water flow at a speed of 6 cm/sec through a tube of radius 1cm. Coefficient of viscosity of water at temperature is 0.01poise. Calculate the Reynolds number. Is it a steady flow

11. An air bubble of diameter 2 mm rise steadily through a solution of density 1750 kg/m^3 at the rate of 0.35 cm/sec. calculate the coefficient of viscosity of the solution. The density of air is negligible

12. A rectangular tang is filled to the brim with water. When a hole at its bottom is unplugged, the tank is emptied in time T. In what time, the tank half filled with water will be emptied out