PHYSICS

SpeedLabs
Assisted Practice | Expert Guidance | Personalized Insights
An Innovative Learning Methodology by IITians.

| Board – ICSE | Class – 9th | Topic – Pressure | Max. Marks –40 | Time – 1.5 Hrs. |

1. How will you forecast the gradual and sudden rise in the atmospheric pressure with the help of a barometer?
2. How do weather changes affect atmospheric pressure?
3. State the laws of liquid pressure.
4. Deduce an expression for the pressure at a depth inside a liquid.
5. Why one cannot suck lemonade on the surface of the moon with a soda straw?
6. A glass slab of dimensions 10 cm $\times$ 10 cm $\times$ 4 cm and weight 8 N rests with its sides 10 cm $\times$ 10 cm in contact with the top of the table. Calculate the pressure exerted. If the slab is tilted and allowed to rest on the surface on side 10 cm $\times$ 4 cm, will the pressure increase, decreases or remain the same?
7. Explain
    (i) What do you mean by diving suit? Give the two categories in which modern diving suits are divided.
    (ii) Why is blood pressure in humans greater at the feet than at the brain?
8. What is the difference between thrust and pressure? Write their SI units.
9. A cube of side 5 cm is placed inside a liquid. The pressure at the centre of one face of cube is 10Pa. Calculate the thrust exerted by the liquid on this face.
10. A glass jar contains a liquid of density'd' up to a height 'h' at a place where acceleration due to gravity is 'g'. The atmospheric pressure is P_A.
    (i) What is the pressure at the free surface of the liquid?
    (ii) Write an expression for the total pressure at the bottom of the jar.
    (iii) What will be the lateral pressure at this depth on the inner side of the jar.
11. State the law of transmission of pressure in liquids.
12. A cube of height 10cm is immersed in a water of density 1000kg/m³. The length of the liquid column is 40cm and the upper surface of the cube is 15cm below the water surface. Calculate the pressure at the top and bottom of the cube; also calculate the resultant pressure on the cube.
13. Draw a labeled diagram of a common hydrometer and state the principle used in its working.