Floatation: Class-9 important solved Questions from previous year CBSE Board Paper -1

Question: 1. What causes buoyant force (or up thrust) on a boat?

Answer: Buoyant force is due to volume of boat and density of water.

Question: 2. what is the cause of buoyant force?

Answer: : The pressure difference on lower part and upper part of a body cause of buoyant force .

Question: 3. An Object of volume V is immersed in a liquid of density P. Calculate the magnitude of buoyant force acting on the object due to the liquid

Answer: Vd g

Question: 4. why does a block of wood held under water rise to the surface when released?

Answer: This happens because as upward force is greater than the weight.

Question: 5. What happens to the buoyant force as more and more volume of a solid object is immersed in a liquid. When does the buoyant force become maximum?

Answer: The buoyant force exerted by a fluid is equal to the weight of fluid displaced. Therefore the buoyant force increases as more and more volume of a solid object is immersed in a liquid.

Buoyant force is maximum when a body is completely immersed in a fluid.

Question: 6. Explain why, a piece of glass sinks in water but it floats in mercury.

Answer: The density of glass is more than water, but less then mercury, Therefore glass float on mercury and sinks in water.

Question: 7. When is the pressure on the ground more when a man is walking or when a man is standing ? Explain.

Answer : When a man is walking is weight is alternately on one feet or the other, when he is standing, his weight is divided on both feet. Therefore pressure is more on the ground when he is walking (as surface area is less).

Question: 8. A solid weighs 80 g in air, 64 g in water. Calculate the relative density of solid. When kept in water, state if the object would float or sink?

Answer: Weight loss in water = (80 - 64) g = 16

Relative density of solid = (weight in air/ Weight loss in water) = 80/16= 5

Since relative density of water is 1 which is less than that of solid. Hence Solid Sink

Question: 9. why density varies?

Answer: The density of a material depends on two things.

(i) The individual mass of each atom or molecule of substance (ii) How tightly the atoms are packed

Question: 10. An object is suspended with a string . The string is stretched. When the object is completely immersed in water, the extension of the thread decreases. Why?

Answer : This happen because when the object is completely immersed in water it experience an upward force that cause weight loss.

Question: 11. What happens when:

(a) Buoyant force exerted by the fluid is less than the weight of the body?

(b) Buoyant force exerted by the fluid is equal to the weight of the body

Answer : (i) Body Sink (ii)body floats on surface of fluid

Question: 12. A 600N clown on stilts says to two 600N clowns sitting on the ground, " I am exerting twice as   much pressure as the two of you together ! " Could this statement be true? Explain your reasoning

Answer: Yes, this statement could be true. Pressure is inversely related to area over which force distributed. The clown on stilts is exerting force over a much smaller area than the two clowns on stilts. He is exerting twice as much pressure as the other two clowns are.

Question: 13. Why does water pressure increase as the depth of the water increases?

Answer : The weight of the atmosphere plus the weight of the water above presses down due to gravity. At greater depths, more water presses down from above, increasing water pressure.

Question: 14.   A body of mass 400g has a volume of 300cm3. State whether the body will sink or float in water. Give reason.

Answer :Density of object = m/v = 400/300 = 1.3 g/cm^3

It will sink as it is denser than water

Water displaced = volume of object x density of water =   300cm^3 x 1.3 g/cm^3 = 300gm

Question: 15. If we want to determine the volume of a solid by immersing it in water, then what kind of solid should we take ?

Answer :   Metallic solid block.

Question: 16.In a spring balance the space between 0 and 25 g marks is divided into 10 equal parts. Calculate the least count of spring balance.

Answer: 10 small divisions = 25 g   1 small divisions = 2 5/1 0 = 2.5 gwt

Least count of spring balance = 2.5 gwt