COLEGIO NACIONES UNIDAS I.E.D.

Aprobado según Resoluciones 10-085 DE MARZO 20 DE 2009

FORMACIÓN INTEGRAL DE LÍDERES EMPRENDEDORES COMPETENTES, CON PRINCIPIOS DEMOCRÁTICOS, TECNOLÓGICOS, CULTURALES Y DEPORTIVOS

"EDUCACIÓN, CIENCIA, CULTURA Y DEPORTE PARA TRASCENDER"

SEVENTH GRADE   SKILLS WORKSHOP

INSTRUCTIONS
"Copy and solve the workshop in the notebook"
Date delivery: July 15th

Read carefully and answer questions 1 to 3

> Fluid statics is a part of mechanics that studies fluids.
> fluids at rest; many call it Hydrostatic even though this term means
> "Static of Water". This term is generally used
> to designate the statics of fluids.
> Fluids are substances that can flow, therefore, the term includes both
> liquids and gases. In fluid statics it is assumed that the fluid and other
> relevant objects, such as
> like the container that contains it are at rest. However, the
> fluids that exist in nature have movement inside them
> due to internal friction or viscosity; This makes the study of fluids
> difficult, which is why we will study ideal fluids.
> That is, those in which there is no type of viscosity.

1. The terms most used to identify Fluid Mechanics are:
   a. Hydromechanics
   b. Hydrostatic
   c. Fluids at rest
   d. None of the above
2. Complete the following sentence
   Fluid statics studies ideal _____ in which there is no _____
   a. fluids – viscosity
   b. hydrostatic - fluids at rest
   c. Static of Water – movement
   d. Internal friction – ideal fluids
3. Complete the following sentence
   Fluids include both _____ and _____
   a. Viscosity – movement
   b. Internal friction – fluids
   c. Liquids – gases
   d. Flow – viscosity
4. If a force of 10 N acts on a rectangular surface of length equal to 5m and width of 2m. Calculate the Pressure applied on said surface
   a. 4 Pa
   b. 3 Pa
   c. 2 Pa
   d. 1 Pa

$$P = \frac{F}{A}$$

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5. If a force of 20 N acts on a triangular surface with a base equal to 4m and a height of 2m. Calculate the Pressure applied on said surface
    a. 5 Pa
    b. 6 Pa
    c. 7 Pa
    d. 8 Pa

$$P = \frac{F}{A} \qquad A = \frac{b \cdot h}{2}$$

6. The force that supports a floating object is:
    a) Buoyant force.
    b) Displacement pressure.
    c) Force due to pressure.
    d) Gravitational force.
    e) Normal force.

7. A heavy object is easier to lift underwater than in the air because water exerts a force that:
    a. Is due to pressure.
    b. Is greater than the buoyant force of air.
    c. Is equal in all directions.
    d. Acts in the opposite direction to the object.
    e. Is negligible.

8. The shape of a water droplet is:
    a. Spherical, due to adhesion forces.
    b. Spherical, due to cohesion forces.
    c. Aerodynamic, due to adhesion forces.
    d. Aerodynamic, due to cohesion forces.
    e. It has no shape.

9. Mark true (T) or false (F).
    I.   A gas is a fluid that transmits the force applied to it.
    II.   A liquid is a fluid that transmits the force applied to it.
    III.   A liquid is a fluid that transmits the pressure exerted on it.
    a. TFF
    b. TFT
    c. FFT
    d. FTT
    e. All of the above are false.

10. A container floats in the water contained in a cylinder. The container has an iron block inside it. If this block is removed from the container, what happens to the water level inside the cylinder?
    a. It remains unchanged.
    b. It decreases.
    c. It increases.
    d. Nothing can be affirmed, insufficient information.

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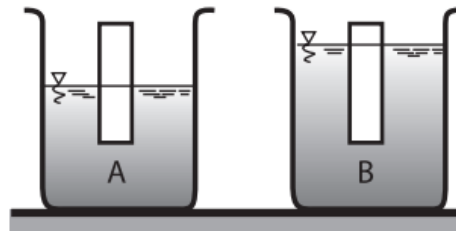
e.   N.A

11. In the figure, the same object is represented floating in two different liquids. Indicate true (T) or false (F).

( ) Liquid A is denser than liquid B.

( ) The gravitational force acting on the body in each case is the same.

( ) Liquid B exerts greater buoyant force.

a.   TTT
b.   TVT
c.   TFF
d.   TFT
e.   FTT

12. In the figure shown, a small sphere of density "D" falls vertically from rest until reaching the bottom of the container with zero velocity. Neglecting frictional forces, which statements are correct?

I. $D = D_1 = D_2$
II. $D > D_1$
III. $D_2 > D$

a.   I
b.   II
c.   III
d.   II and III
e.   N.A.
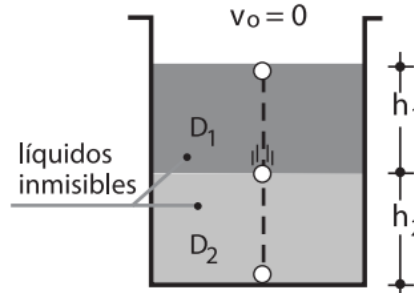
13. The sphere shown is in equilibrium inside a liquid whose density is 10 times the density of the sphere. Which of the graphs best represents the position of the sphere and the level of the liquid when the container undergoes uniformly decelerated rectilinear motion towards the right?