A JESUIT CHRISTIAN MINORITY INSTITUTION

Subject- Physics   **Worksheet- 28**   **Class – IX**
Date -28.04.2020

Chapter- surface tension

Answer the following questions   (MCQ) :   **(1×15):**

QUESTION: 1

The angle of contact for liquid on a solid surface is the angle between:

- A.

  the tangent to the liquid surface at the point of contact and the solid surface

- B.

  the tangent to the solid surface at the point of contact and the liquid surface

- C.

  the liquid surface and the solid surface at the point of contact

- D.

  none of these

QUESTION: 2

When impurity is added to a liquid, its surface tension

- A.

  decreases

- B.

  first decreases and then increases

- C.

  increases

- D.

  remains same

If drops and bubbles do not collapse under the effect of gravity, it indicates that

- A.

  pressure inside the drop is greater than outside

- B.

  pressure inside the drop is lower than outside it

- C.

  Surface tension is low

- D.

  Viscosity is large

By which phenomenon does the water rise from roots to leaves of plants?

- A.

  Capillary action

- B.

  Surface Tension

- C.

  Bernoulli's Theorem

- D.

  Viscosity

SI unit of surface tension is

- A.

  N.m²

- B.

  N.m

- C.

  N/m

- D.

  N/m²

When an air bubble of radius R lies at a depth h below the free surface of a liquid of density ρ and surface tension S_{la}, then the excess pressure inside the bubble will be

- A.

  $$P = \frac{2S_{la}}{R} - h\rho g$$

- B.

  $$P = h\rho g$$

- C.

  $$P = \frac{2S_{la}}{R} + h\rho g$$

- D.

  $$P = \frac{S_{la}}{2R}$$

Water rises to a height of 20 mm in a capillary. If the radius of the capillary is made 1/3 rd of its previous value, to what height will the water now rise in the tube?

- A.

60 mm

- B.

80 mm

- C.

40 mm

- D.

30 mm

The excess pressure inside a soap bubble is (Here, S_{la} is the surface tension between the liquid-air interface).

- A.

$$P_i - P_0 = \frac{S_{la}}{4r}$$

- B.

$$P_i - P_0 = \frac{2S_{la}}{r}$$

- C.

$$P_i - P_0 = \frac{4S_{la}}{r}$$

- D.

$$P_i - P_0 = \frac{S_{la}}{4r}$$

Question 9.

 The angle of contact for liquid on a solid surface is the angle between:

A. the tangent to the liquid surface at the point of contact and the solid surface

B. the tangent to the solid surface at the point of contact and the liquid surface

C. the liquid surface and the solid surface at the point of contact

D. none of the above.

Question 10

When impurity is added to a liquid, its surface tension

A. decreases

B. first decreases and then increases

C.increases

D.remains same

Question 11.

Which of the following is true about water?

A.Water molecules are attracted to each other

B. The oxygen end of a molecule is slightly negative

C.The hydrogen end of a molecule is slightly positive

D. All answers are correct

Question 12.

A bug is able to walk on the surface of water because which of the following?

- Surface tension
- Capillary action
- Viscosity
- Physical changes

Question13.

Capillary action is the result of which of the following?

- Adhesion
- Cohesion
- Physical changes
- Plants

question 14.

What is surface tension?

A.How well two liquids mix.

B.The cohesion between molecules at the air-liquid surface.

C.How heavy a liquid is.

D.A definition of how much weight a liquid can carry.

Question 15.

Which surface would hold more weight: hot or cold water? Why?

- Hot: since pressure is higher when it is hotter the surface tension is higher so more weight can be held.

- Hot: since intermolecular forces are lower at higher temperatures surface tension is lower so more weight can be held.

- Cold: since pressure is lower when it is colder the surface tension is lower so more weight can be held.

- Cold: since intermolecular forces are stronger at lower temperatures surface tension is higher so more weight can be held.

Teacher- Piyali Halder