Pressure and Pressure Exerted by Liquids & Gases

Choose the correct answer:

1. Pressure is defined as:

(a) Force × Area

(b) Force ÷ Area

(c) Area ÷ Force

(d) Force + Area

2. Which of the following statements is true about liquids and gases?

(a) Liquids exert pressure only upward.

(b) Gases do not exert pressure.

(c) Liquids and gases exert pressure in all directions.

(d) Pressure acts only at the surface of liquids.

3. The pressure exerted by a liquid increases with:

(a) Decrease in temperature

(b) Increase in depth

(c) Increase in surface area

(d) Increase in color of the liquid

B. Fill in the Blanks:

1. Pressure is the force applied per unit _____.

2. Liquids exert pressure on the _____ and _____ of the container.

3. Air pressure is also known as _____ pressure.

C. Case Study:

In a classroom experiment, students filled a plastic bottle with water and made holes at different heights. They observed that water from the bottom hole came out with more force than the top ones. In another activity, they used a balloon pump and noticed the balloon expanded as air was pushed in.

Case Study Questions:

1. What did students learn from the water bottle experiment?

2. Why did water from the bottom hole come out with more force?

3. What concept was demonstrated using the balloon?

4. Why do gases exert pressure in all directions?

D. Short Answer Questions:

1. Define pressure and write its formula.
2. What happens to the pressure in a liquid as depth increases?
3. Give two examples showing that air exerts pressure.

E. Long Answer Questions:

1. Explain how pressure is exerted by liquids and how it varies with depth.
2. Describe how gases exert pressure with the help of everyday examples.
3. Why is pressure an important concept in understanding the behavior of liquids and gases?