Cosmo School

Physics | **Worksheet 4 : 10/08/2020** | **Class - IX**

CHAPTER 5 : STATE OF MATTER AND PRESSURE

Instructions:

- ✓ Read the chapter in your book - quickly and thoroughly, preferably more than once.
- ✓ Watch the uploaded video classes of this chapter from school's website/You Tube channel. For becoming more clear about the basics, watch more than once, if needed.
- ✓ Contact me in case of any difficulty in understanding.

(Questions given in this worksheet are important questions for all exams)

Cognitive Questions (Mark - 1)

1. What is atmospheric pressure?

Ans.: The pressure exerted vertically by the weight of the atmosphere on per unit area of earth is called the atmospheric pressure of that area.

2. Write down Pascal's law.

Ans.: " if pressure is applied on a liquid or gas enclosed in a container from outside then this pressure is transmitted equally and acts perpendicularly on the surface of the container in contact with the liquid or gas."

Analytical Questions (Marks - 2)

1. What is Torricelli's vacuum? Explain.

Ans.: If a one-meter long glass tube opened at one end filled with mercury is put into a mercury filled container inverted and perpendicularly, due to air pressure the

mercury comes down, but at a certain level, it becomes steady. Which means a portion of tubes upper area becomes vacuum. This vacuum is known as Torricelli's vacuum.

2. Why atmospheric pressure reduces with the increase of altitude? Explain.

Ans.: Air is a fluid. So atmospheric pressure depends on the height of atmosphere and the density of air. The pressure at any level in the atmosphere may be interpreted as the total weight of the air above a unit area at any elevation. At higher elevation, there are fewer air molecules above a given surface than a similar surface at lower levels. So, with the increasing altitude, the atmospheric pressure decreases.

3. Why does not the shape of a human body change in atmospheric pressure?

Ans.: On earth surface atmospheric pressure is 10^5N per square meter. If we assume, body area of an adult human is 1.5m^2, the atmospheric pressure on his body will be 1.5 x 10^5N. But the blood pressure inside the human body is slightly above this pressure, so human does not feel this pressure. As a result, the human body does not deform at atmospheric pressure.

4. Why do we not feel the atmospheric pressure? Explain.

Ans.: The blood pressure inside our body is slightly greater than atmospheric pressure and this blood pressure acts along every direction in the body equally. That's why we don't feel the atmospheric pressure.