

Short Answer Questions

Q. 1. A simple pendulum makes 10 oscillations in 20 seconds. What is the time period and frequency of its oscillation? [NCERT Exemplar]

Ans.

$$\text{Time period} = \frac{20}{10} = 2 \text{ s}$$

$$\text{Frequency} = \frac{1}{2 \text{ s}} = 0.5 \text{ oscillations/s}$$

Q. 2. We have learnt that vibration is necessary for producing sound. Explain why the sound produced by every vibrating body cannot be heard by us. [NCERT Exemplar]

Ans. If the sound produced by a vibrating body is in the audible range, the sound produced will be heard by us otherwise we will not be able to hear the sound even though the body is vibrating.

Q. 3. Suppose a stick is struck against a frying pan in vacuum. Will the frying pan vibrate? Will we be able to hear the sound? Explain. [NCERT Exemplar]

Ans. The frying pan will vibrate. We will not be able to hear the sound of vibration because sound cannot travel in vacuum.

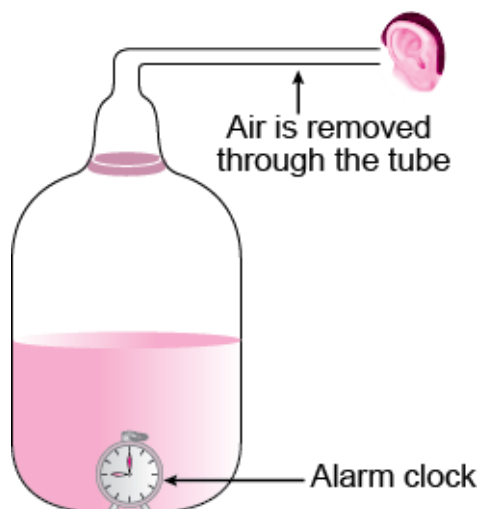
Q. 4. Two astronauts are floating close to each other in space. Can they talk to each other without using any special device? Give reasons. [NCERT Exemplar]

Ans. No, in space there is vacuum and sound cannot travel in vacuum.

Q. 5. Define frequency. What is its SI unit?

Ans. The number of oscillations per second is called the frequency of oscillation. Its SI unit is hertz (Hz).

Q. 6. An alarm bell is kept inside a vessel as shown in the figure below. A person standing close to it can distinctly hear the sound of alarm. Now if the air inside the vessel is removed completely how will the loudness of alarm get affected for the same person? [NCERT Exemplar]



Ans. The loudness of the sound will decrease as the air is removed slowly from the plastic bottle. If the air in the plastic bottle is removed completely, there is vacuum in the bottle. The sound cannot travel through vacuum and we cannot hear the sound of the alarm clock at all.

Q. 7. We have a stringed musical instrument. The string is plucked in the middle first with a force of greater magnitude and then with a force of smaller magnitude. In which case would the instrument produce a louder sound? [NCERT Exemplar]

Ans. The loudness of sound depends upon the amplitude of vibration. The amplitude of string is larger when it is plucked with greater force and hence the sound will be louder in that case.