BRAIN INTERNATIONAL SCHOOL

Physics Assignment **Class: IX** **Nov'2024**

Chapter 11: Sound

1. MULTIPLE CHOICE QUESTIONS:

i. Sound travels in air if
(a) particles of medium travel from one place to another
(b) there is no moisture in the atmosphere
(c) disturbance moves
(d) both particles as well as disturbance, travel from one place to another.

ii. The frequency of a source of sound is 100 Hz. How many times does it vibrate in a minute?
(a) 100 (b) 1000
(c) 600 (d) 6000

2. In each of the following questions, two statements are given- one labeled Assertion (A) and the other labeled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

a) Both A and R are true, and R is correct explanation of the assertion.

b) Both A and R are true, but R is not the correct explanation of the assertion.

c) A is true, but R is false.

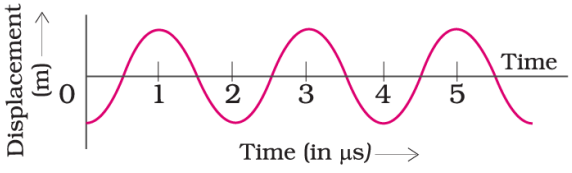
d) Both assertion and reason are false.

(i) **Assertion**: Compression and rarefaction involve changes in density and pressure.
Reason: When particles are compressed, density of medium increases and when they are rarefied, density of medium decreases.

(ii) **Assertion**: The velocity of sound increases with increase in temperature.
Reason: Velocity of sound does not depend upon the medium.

3. Answer the following questions:

1. Distinguish between transverse and longitudinal wave.
2. Why do we hear the sound produced by the humming bees while the sound of vibrations of a pendulum is not heard?
3. The given graph shows the displacement versus time relation for a disturbance travelling with a velocity of 1500 m s^{-1}. Calculate the wavelength of the disturbance.



4. Draw diagrams to represent soft sound and loud sound.

5. The sound produced by a thunderstorm is heard 10 s after the lightning is seen. Calculate the approximate distance of the thundercloud. (Given the speed of sound = 340 m s^{-1}.)
6. A person has a hearing range from 20Hz to 20Khz. What are the typical wavelengths of sound waves in air corresponding to these two frequencies? (Speed of sound in air = 340m/s)
7. Three persons A, B and C are made to hear a sound travelling through different mediums as given below. Who will hear the sound first? Give reason.

Person	**Medium**
A	Iron Rod
B	Air
C	water

8. Define the following terms related to wave motion:
   (a) amplitude
   (b) time period
   (c) frequency
   (d) wavelength