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TENDER HEART HIGH SCHOOL, SEC-33B, (ND)
Subject PHYSICS; CLASS—VIII
Chapter- Sound (8)(A)

Q8 :→ Write two points of differences between the wavelength and Wave Velocity.

Ans

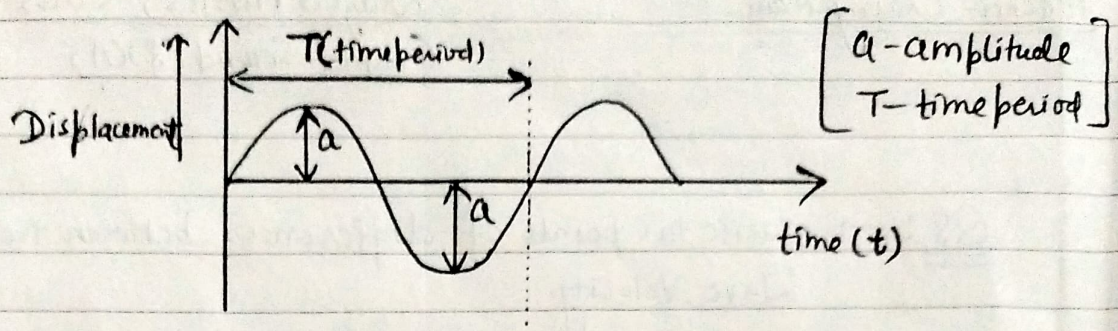
Wavelength	Wave Velocity
1. It is the distance travelled by the wave in one time of period of vibration.	1. The distance travelled by the wave in one second is called its Wave Velocity or wave speed.
2. It is denoted by letter λ (Lambda)	2. It is denoted by the letter V.
3. Its S.I unit is metre or m.	3. Its S.I unit is metre per second or m/s

Q9 :→ Define amplitude related to Wave motion.

Ans Amplitude :→ The maximum displacement of the particle of the medium on either side of its mean position is called the amplitude of the wave. It is denoted by letter 'a'. Its S.I unit is metre (m).

Q10 :→ Show the graphical representation of the variation of displacement with time for a particle of the medium, when a wave travels through the medium. Also represent amplitude (a) and Time period of the wave.

Ans:→



Q11:→ Write the relation b/w the wavelength (λ), wave Velocity (V) and frequency (f) for wave motion.

Ans:→

$$V = f\lambda$$

or Wave Velocity (V) = frequency (f) × Wavelength (λ)

Q12:→ In which of the following mediums, does the sound travel faster? 1. Solid 2. liquid 3. Gas

Ans:→ Sound travels faster in solids. Sound's speed is less in liquids and least in gases.

Q13:→ Write the approximate values of speed of sound in steel and water.

Ans The Speed of sound in steel is nearly 5100 m/s
The Speed of sound in water is about 1400 m/s

Q14:- Write the value of speed of Sound in Air?

Ans The Speed of Sound in air is about 330 m/s

Q15:→ Why the speed of sound in hydrogen gas is more than that of it in the oxygen gas? Give reason.

Ans 15:→ Speed of sound is inversely proportional to the density of the gas. As the density of hydrogen is less than that of oxygen gas so sound travels faster in hydrogen than oxygen gas

for * understanding only

Q16:→ What is the Effect of temperature and humidity on the speed of sound in a gas?

What is Humidity ⇓ (water vapours in atmosphere)

Ans:→ (a) Effect of temperature:→ The speed of sound in a gas increases with the increase in temperature of the gas; because with the increase of temperature the gas density will decrease.

* Humid air is lighter as of water vapours but Dry air is heavier because of Oxygen & Nitrogen molecules

(b) Effect of humidity:→ The speed of sound in air increases with the increase of humidity in the air. because the humid air is lighter than dry air.

Q17:→ The sound of a distant music is loudly heard when it is coming with the direction of wind Why?

Ans The speed of sound increases if the wind is blowing in the direction of sound. So, we can hear distant music loudly in the direction of wind blowing.

Q18:→ Compare the speed of sound with the speed of light?

Ans 18:→

Speed of Sound	Speed of light
1. The sound waves cannot travel in vacuum	1. Light waves can travel in vacuum.
2. The speed of sound waves in air is about 330 m/s	2. The speed of light waves is 3×10^8 m/s in air
3. The speed of sound waves is more in solids, less in liquids and least in gases	3. The speed of light waves decreases in an optically denser medium.

Q19:→ The spectators watching a cricket game hear the sound of strike little later than the batsman actually is seen making it. Why?

Ans:→ The reason is that velocity of light is much greater than the velocity of sound.
i.e $V_{light} >> V_{sound}$.

Q20:→ Show the graphical representation of the variation of displacement with distance, when a wave travels in a medium. Represent wavelength over the variation.

Ans:→