

NTSE

NCERT Solutions for Class 9 Science
PHYSICS – Sound



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NCERT ANNEXURE

Below are the solutions for Subjective type questions from NCERT Annexure.

1. (A) What is sound? How this energy is different from light energy?
(B) What is vibration?

Ans. (A) Sound is a form of energy which enables us to hear. Sound waves need medium to travel but light waves do not.
(B) A repeated back and forth motion of an object about its mean position is called vibration.

2. What are compressions & rarefactions?

Ans. **Compression:** It is that part of a longitudinal wave in which the particles of the medium are closer to one another than they normally are. It is high density region, of the medium.

Rarefaction: It is that part of a longitudinal wave in which the particles of the medium are farther apart than the normal. It is low density region of the medium.

3. Write the differences between longitudinal & transverse waves?

S. No.	Transverse Waves	Longitudinal Waves
(i)	Displacement of the particles is at right angles to the direction of propagation of the waves.	In these waves, displacement of the particles of the medium is in the direction of propagation of the waves.
(ii)	These waves travel in the form of crests and troughs.	These waves travel in the form of compressions and rarefactions.
(iii)	The distance between two consecutive crests or troughs is called wavelength.	The distance between two consecutive compression or rarefaction is called wavelength.
(iv)	These waves can travel in solids and liquids only.	These waves can travel in solids, liquids and gases.
(v)	Eg.: Light waves	Eg.: Sound waves

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4. What is reverberation? How can it be reduced?

Ans. The persistence of sound in a big hall due to repeated reflections from the walls, ceiling and floor of the hall is called reverberation.

If the reverberation is too long, then the sound becomes blurred, distorted and confusing due to overlapping of different sounds.

Some of the methods used for reducing reverberations are as follows:

- (i) Panels made of sound-absorbing materials (like compressed fireboard) can be used on the walls & ceilings of big halls and auditoriums.
- (ii) Carpets can be placed on the floor to absorb sound.
- (iii) Heavy curtains can be used on doors and windows to absorb sound and reduce reverberations.

5. Write three uses/applications of ultrasound.

- Ans.**
- (i) SONAR device used to detect presence of underwater objects.
 - (ii) Ultrasonic waves are used in directional signaling.
 - (iii) Reflection of ultrasonic is used to estimate the depth of sea.
 - (iv) It is used to detect flaws in metals.
 - (v) It is used to reach places like spiral tubes, odd shaped machine parts etc.
 - (vi) In echo cardiography.
 - (vii) To break small stones in kidney.
 - (viii) In ultra sonography.

NCERT EXEMPLAR

Multiple Choice Questions

1. Note is a sound

- (A) Of mixture of several frequencies (B) Of mixture of two frequencies only
(C) Of a single frequency (D) Always unpleasant to listen

Ans. (C)

2. A key of a mechanical piano struck gently and then struck again but much harder this time. In the second case

- (A) Sound will be louder but pitch will not be different
(B) Sound will be louder and pitch will also be higher
(C) Sound will be louder but pitch will be lower
(D) Both loudness and pitch will remain unaffected

Ans. (A)

3. In SONAR, we use

- (A) Ultrasonic waves (B) Infrasonic waves
(C) Radio waves (D) Audible sound waves

Ans. (A)

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STORY**

I still wonder how one man has such a deep understanding of an examination. It becomes the truth what ever Nipin Sir says about NTSE.

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4. 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.

Ans. (C)

5. When we change feeble sound to loud sound we increase its

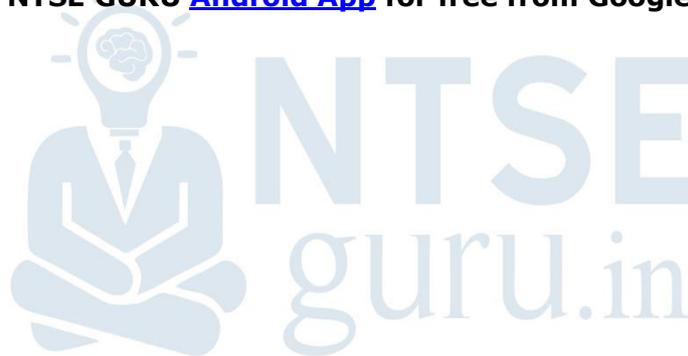
- (A) Frequency
- (B) Amplitude
- (C) Velocity
- (D) Wavelength

Ans. (B)

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