



PHYSICS

BOOKS - ICSE

SOUND

Topic 1 Nature Of Sound Waves 2 Marks Questions

1. If sound wave of frequency 500Hz and wavelength 0.66m is travelling in a medium.

Calculate the velocity of the wave in the medium.



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2. Sound waves A and B are travelling in two different media. Find which wave will be travelling faster, when A is travelling in water and B is travelling in CO_2



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3. Sound waves A and B are travelling in two different media. Find which wave will be travelling faster, when A is travelling in CO_2 and B is travelling in hydrogen.



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4. A bat can hear sound of frequencies up to 120 kHz. Determine the minimum wavelength of sound which it can hear. Take speed of sound in air to be 344 m s^{-1}





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5. What is sound. How is it produced?



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6. The heart of a man beats 75 times a minute.

What is its (a) frequency ?



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7. The heart of a man beats 75 times a minute.

What is its time period?



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8. The separation between two consecutive crests in a transverse wave is 100 m. If wave velocity is 20 m s^{-1} , find the frequency of wave.



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9. A source of wave produces 40 crests and 40 troughs in 0.4 s. What is the frequency of the wave ?



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10. There is no atmosphere on moon. Can you hear each other on the moon.s surface?



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11. The time interval between a lightning flash and the first sound of thunder was found to be 5 s. If the speed of sound in air is 330 m s^{-1} , find the distance of flash from the observe.



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12. How long will sound take to travel 3.3 km in iron rail ? Take speed of sound in iron = 5280 m s^{-1}





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13. How long will sound take to travel in (a) an iron rail and (b) air, both 3.3 km in length ?

Take speed of sound in air to be 330 m s^{-1} and in iron to be 5280 m s^{-1} .



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14. Explain the terms crest and trough of a wave.



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15. If you place your ear close to an iron railing which is tapped some distance away, you hear the sound twice. Explain why?



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16. The sound of an explosion on the surface of a lake is heard by a boat man 100 m away and by a diver 100 m below the point of explosion.

(i) Who would hear the sound first: boatman or diver?

(ii) Give a reason for your answer in part (i).



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Topic 1 Nature Of Sound Waves 3 Marks Questions

1. State three characteristics of the medium required for the propagation of sound in a medium.





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2. The smoke from the gun barrel is seen 2 second before the explosion is heard. If the speed of sound in air is 340 ms^{-1} , calculate the distance of observer from gun. State the approximation used.



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3. The speed of sound in air is 330 ms^{-1} and in water is 1650 ms^{-1} . It takes 2 s for sound to

reach a certain distance from the source placed in air. Find the distance.



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4. The speed of sound in air is 330 ms^{-1} and in water is 1650 ms^{-1} . It takes 2 s for sound to reach a certain distance from the source placed in air. How much time will it take for sound to reach the same distance when the source is in water ?



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5. Describe a simple experiment which demonstrates that the sound produced by a tuning fork is due to vibrations of its arms.



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6. A wave travels at a speed of 0.3 m s^{-1} and the frequency of wave is 20 Hz. Find the separation between two consecutive compressions.



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7. State three characteristics of the medium required for propagation of sound?



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8. An observer sitting in line of two tanks, watches the flashes of two tanks firing at each other at the same time, but he hears the sounds of two shots 2 s and 3.5 s after seeing

the flashes. If distance between the two tanks is 510 m, find the speed of sound.



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9. Define the term amplitude of a wave. Write its S.I. unit.



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10. What do you mean by the term frequency of a wave ? State its S.I. unit.



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11. How are the wave velocity v , frequency n and wavelength λ of a wave related? Derive the relationship.



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12. An observer A fires a gun and another observer B at a distance 1650 m away from A hears its sound. If the speed of sound is 330

m/s, Find the time when B will hear the sound after firing by A.



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Topic 1 Nature Of Sound Waves 4 Marks Questions

1. Write the difference between the propagation of sound and light waves.



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2. How do the following factors affect, if at all, the speed of sound in air : frequency of sound



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3. How do the following factors affect, if at all, the speed of sound in air:

Temperature of air



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4. How do the following factors affect, if at all, the speed of sound in air:

Pressure of air



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5. How do the following factors affect, if at all, the speed of sound in air : moisture in air?



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6. Describe in brief, with the aid of a sketch diagram, an experiment to demonstrate that a material medium is necessary for propagation of sound.



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Topic 2 Infrasonic And Ultrasonic Waves 2 Marks Questions

1. What do you mean by the inaudible range of frequency?



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2. Can you hear the sound produced due to vibrations of a seconds' pendulum ? Give reason.



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3. The properties of ultrasound that make it useful, are



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4. What do you mean by the audible range of frequency?



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5. What is ultrasound ?



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6. State the approximate speed of ultrasound in air.



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Topic 2 Infrasonic And Ultrasonic Waves 3 Marks Questions

1. Differentiate between the terms supersonic and ultrasonic.



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2. State two applications of ultrasound.



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3. Explain how do bats locate the obstacles and prey in their way.



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