

**Class: 9**  
**Subject: Physics**  
**Topic: Sound and oscillation**  
**No. of Questions: 22**

- Q1. Explain how bats use ultrasound to catch a prey?
- Q2. Explain how moths of certain families are able to escape capture from a bat?
- Q3. (a) Why are sound waves called mechanical waves? List two practical applications of reflection of these waves.  
(b) A stone is dropped from the top of a tower 125 m high into a pond of water at the base of the tower. When is the splash heard at the top?
- Q4. Describe an activity to show that sound needs a material medium for its propagation.
- Q5. What is an echo? When can we distinctly hear the echo of a sharp sound? Why cannot we hear an echo in small Halls?
- Q6. (a) List in tabular form two distinguishing features between longitudinal waves and transverse waves. Give an example of each.  
(b) State and define three characteristics associated with sound waves
- Q7. Give two examples of each longitudinal and transverse wave
- Q8. A ship sends out ultra sound that returns from the seabed and is detected after 4s. If the speed of ultra sound through sea water is 1550 m/s, find the distance of the seabed from the ship.
- Q9. What is meant by reverberation? State the advantages of curved ceilings of cinema halls and conference halls.
- Q10. (a) List two factors on which speed of sound depends.  
(b) Distinguish between intensity of sound and loudness of sound.  
(c) The frequency and wavelength of sound wave are 2 kHz and 0.35 m respectively. Find the time it will take to travel a distance of 1.5 km.
- Q11. How does the ear drum of human ear vibrate?
- Q12. What is the role of hammer bone, anvil bone, stirrup bone and cochlea of human ear in hearing a sound?
- Q13. What kind of waves can be produced on a slinky?
- Q14. What is the velocity of pulse for slinky when it takes 5 sec to travel from point A to B and back to A. Distance Between A to B is 5 m

- Q15. Two slinky A and B of the same length are made up of two different materials. The times taken by 20 pulses to travel in both of them are 70 s and 90 s respectively. It concludes that:  
(a) The pulse travels faster in B than in A.    (b) The pulse travels faster in A than in B.  
(c) Pulse travels slower in B than A.        (d) Pulse travels with the same speed in A and B
- Q16. A strong transverse pulse is created in one end of a string. It completes 10 journeys along its length, before fading out. The initial reading of the stop clock used in the experiment was 25s and the final reading was 75s. If the length of the string for one journey is L meter, what is the speed of the pulse through the string?
- Q.17. How does the stethoscope help the doctors in listening to the sound of the patients heart beat?
- Q.18. Explain how defects in a metal block can be detected using ultrasound.
- Q.19. How is ultrasound used for cleaning?
- Q.20. What is echo ranging? State any one application of this technique.
- Q.21. A person is listening to a tone of 500 Hz sitting at a distance of 450 m from the source of the sound. What is the time interval between successive compressions from the source?
- Q.22. Write the full name of SONAR. How will you determine the depth of a sea using echo ranging?