

**INDIAN SCHOOL MUSCAT**  
**DEPARTMENT OF PHYSICS**  
**CLASS IX WORKSHEET 5**  
**SOUND**

**CONCEPTUAL QUESTIONS**

1.	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. <table border="1" style="margin-left: auto; margin-right: auto;"><thead><tr><th>Person</th><th>Medium</th></tr></thead><tbody><tr><td>A</td><td>Iron Rod</td></tr><tr><td>B</td><td>Air</td></tr><tr><td>C</td><td>water</td></tr></tbody></table>	Person	Medium	A	Iron Rod	B	Air	C	water
Person	Medium								
A	Iron Rod								
B	Air								
C	water								
2.	Draw the graph showing the variation of pressure with distance for two sound waves having (i) same loudness but different pitch (ii) same pitch but different loudness								
3.	Why is the ceiling and wall behind the stage of good conference halls made curved?								
4.	Why are sound waves called mechanical waves ? List two practical applications of reflection of sound waves.								
5.	What is an echo? When can we distinctly hear the echo of a sharp sound ?								
6.	What is the role of hammer bone, anvil bone, stirrup bone and cochlea of human ear in hearing a sound?								
7.	Draw the graphical representation of sound wave. Mark the position of compression and rarefaction on this graph .Also define wavelength and time period with reference to this graph.								
8.	How does the sound produced by a vibrating object reach our ears? Explain giving the names of main parts of ear which help in the process?								
9.	Write three uses of multiple reflection of sound.								
10.	Write differences between longitudinal and transverse wave.								

**NUMERICALS**

1.	Frequency of a source of sound is 500 Hz. How many times does it vibrate in a minute?
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2.	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.
3.	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 ?
4.	A person standing near the cliff fires the gun and heard the echo after 1.5 sec. If the speed of sound in air is 340m/sec, how far is person from the cliff?
5.	A sound wave travels with a speed of 339 m/s. If its wavelength is 1.5 cm what is the frequency of the wave?
6.	A sound produces 20 crests and 20 troughs in 0.4 sec. Find the frequency of the wave.
7.	A person fires a gun standing at a distance of 55m from a wall. If the speed of sound is 330 m/s calculate the time after which he hears the echo.
8.	A SONAR emits pulses on the surface on the surface of water which are detected after reflection from the bottom. If the time interval between the emission and detection of the pulse is 2 s, find the depth of water. Take velocity of sound in water as 1531 m/s .
9.	Establish the relation between speed of sound, its velocity and frequency. If velocity of sound in air is 340 m/s calculate the wavelength when frequency is 256 Hz.
10.	Sound produced by a thunderstorm is heard 10 s after the lightning is seen. Calculate the approximate distance of the thunder cloud. Speed of sound in air is 340 m/s.