

Question: What is meant by echo? What are the conditions necessary for its formation?

Answer: The sound heard after reflection from a rigid obstacle (a cliff, hill or wall) is called an echo.

Echo is heard if the sound reaches our ear 0.1 s after the original sound dies. To hear echo distinctively the distance between the reflecting surface and the listener should be approximately 17 m.

Question: Why do echoes produced in an empty auditorium usually decrease when it is full of audience?

Answer: When the hall is empty there is no obstacles in between to reflect the sound other than the walls. When the hall is full of audiences the sound produced undergoes multiple reflection from the people and so it overlaps with the sound produced. Hence the listener is not able to distinguish between the original sound and the echo.

Question: State the characteristics of a musical note on which its pitch, loudness and quality depend.

Answer: The pitch of a musical sound depends on the frequency of the wave. The higher the frequency higher the pitch. The loudness of a musical note depends on its amplitude, distance of the observer from the source.

Quality or timbre of a musical note depends on the wave form produced by it.