



Sound



Question 18.

Name the two characteristics of sound which differentiate two sounds from each other.

Answer:

A sound wave is characterized by its amplitude and frequency. Depending upon the (amplitude and frequency of the sound wave, the following two characteristics of sound :

(1) Loudness, and (2) Pitch.

Question 19.

On what factor does the loudness of a sound depend ?

Answer:

The loudness of a sound depends on the amplitude of vibration of the vibrating body producing the sound.

Question 20.

How does the loudness of sound produced depend on the vibrating area of the body ?

Answer:

The loudness of sound also depends on the area of the vibrating body. Greater the area of the vibrating body, louder is the sound produced.

If you take two drums, one small and the other big, and beat both of them to produce vibrations in them, We will notice that the sound produced from the big drum is louder than that produced from the small drum. In temples, you must have noticed that the bell with a big case produces a louder sound than that with a small case.

Question 21.

The outer case of the bell in a temple is made big. Give a reason.

Answer:

The outer case of the bell in a temple is made big. So that there is multiple reflection of sound and the sound can be amplified.

Question 22.

State the factors on which the pitch of a sound depends.

Answer:

The pitch of a sound depends on its frequency (i.e., on the frequency of the vibrating body).

Question 23.

Differentiate between a high pitch sound and a low pitch sound.

Answer:

Higher the pitch, the shriller is the sound. Lower the pitch, the flat (or grave) is the sound.

Question 24.

How does a man's voice differ from a woman's voice ?

Answer:

A female voice is shriller than a male voice because of higher frequency. Higher is the frequency, shriller is the sound. Female has higher frequency.

Question 25.

Name the characteristic which differentiates two sounds of the same pitch and same loudness.

Answer:

The quality is the characteristic of sound which distinguishes the two sounds of the same pitch and same loudness.

Question 26.

You recognize your friend by hearing his voice on a telephone. Explain.

Answer:

We can recognize our friend by hearing his voice on a telephone due to quality of sound and pitch of sound.



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Question 27.

A musician recognizes the musical instrument by hearing the sound produced by it, even without seeing the instrument. Which characteristic of sound makes this possible ?

Answer:

It is the pitch and quality that helps a musician recognize the musical instrument by hearing the sound produced by it, even without seeing the instrument.

Question 28.

Describe an experiment to show the production of sound having low and high pitch.

Answer:

Take few rubber bands some thicker and longer, few thinner and of shorter length. Cut and stretch these rubber bands by holding one end of the string in your mouth under the teeth and the other end in your hand. Now pluck these rubber bands one by one. The rubber bands thicker and longer will produce sound with a lower pitch. The rubber bands thinner and shorter will produce sound with a higher pitch.

Question 29.

How does a musician playing on a flute change the pitch of sound produced by it ?

Answer:

In musical instruments like flute and clarinet, the pitch of sound is changed by changing the length of vibrating air column when different holes in it are closed.

Question 30.

Why are musical instruments provided with more than one string ?

Answer:

The stringed instruments are provided with a number of strings of different thickness and under different tensions so that each string produces sound of a different pitch.

Question 31.

How can the pitch of sound produced in a piano be changed ?

Answer:

In a piano, the string is struck to make the string vibrate and produce sound. The pitch of sound produced can be changed by stretching or loosening the strings of piano.

Question 32.

Explain why you can predict the arrival of a train by placing your ear on the rails without seeing it.

Answer:

The sound produced by the moving wheels of train travels much faster through the track than through the air. Therefore they hear through the track much before it is heard through the – air.

Question 33.

Write the approximate speed of sound in (i) air, (ii) water and (iii) steel.

Answer:

Medium	Speed of sound
(i) Gas	
Air	330 m s^{-1}
(ii) Liquid	
Water	1500 m s^{-1}
(iii) Solid	
Iron or Steel	5000 m s^{-1}

Question 34.

During a thunderstorm, the sound of a thunder is heard after the lightning is seen. Why ?