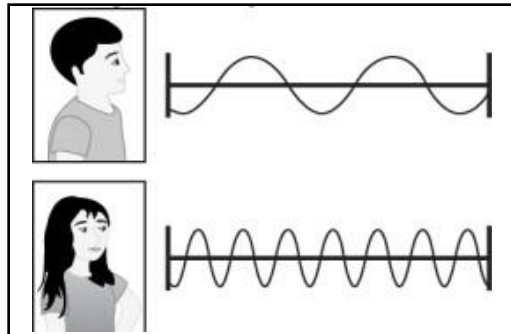




**I. OBJECTIVE-TYPE QUESTIONS:**

1. A person works in a factory where a lot of industrial machines run daily. What harmful effects he is likely to suffer from?
  - a) Fever
  - b) Cataract
  - c) Lack of vision
  - d) Lack of hearing
2. A student learns that the sound travels in a waveform. The image shows the sound waves produced by a man and a woman.



What can be concluded from the image?

- a) The closer the waves, the greater will be the amplitude
  - b) The closer the waves, the greater will be the frequency
  - c) The farther the waves, the greater will be the amplitude
  - d) The farther the waves, the greater will be the frequency
3. Which of the following sounds can be classified as noise for humans?
    - a) Sounds that are softer than 20 dB
    - b) Sounds that are louder than 80 dB
    - c) Sounds that are between 40 dB and 80 dB
    - d) Sounds that are in between 20 dB and 40 dB
  4. A person is talking on the phone. How does his eardrum work to hear a sound?
    - a) The sound enters the inner ear and travels to the brain.
    - b) The sound vibrates the eardrum which sends signals to the brain.
    - c) The sound vibrates the eardrum which goes into the inner ear and then to the brain.
    - d) The sound enters the inner ear and vibrates the eardrum which sends the signal to the brain.
  5. Which of these statements proves that sound can travel through solids?
    - a) We can hear the sound of the wind.

- b) We can hear the sound of lightning.
- c) We can hear a bell ringing from a distance.
- d) We can hear heartbeats by using a stethoscope.

6. A student plucks two stretched metal strings A and E of different thicknesses. The A string vibrates at the rate of 30 vibrations per second and the E string vibrates at a rate of 10 vibrations per second. How many vibrations per second should be given to string E to produce a higher frequency sound than string A?

- a) below 10 vibrations
- b) above 30 vibrations
- c) between 10 vibrations to 20 vibrations
- d) between 10 vibrations to 30 vibrations

*For question numbers 7-10, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (i), (ii), (iii) and (iv) as given below -*

- i) Both A and R are true and R is the correct explanation of the assertion.**
- ii) Both A and R are true but R is not the correct explanation of the assertion.**
- iii) A is true but R is false.**
- iv) A is false but R is true**

7. **Assertion (A):** Trees planted along the roadside help in the reduction of noise pollution.

**Reason (R):** Plants absorb sound and so help in minimizing noise pollution.

8. **Assertion (A):** The frequency determines the shrillness or pitch of a sound.

**Reason (R):** The loudness of sound depends on its amplitude.

9. **Assertion (A):** The sounds of frequencies less than about 20 vibrations per second (20 Hz) cannot be detected by the human ear.

**Reason (R):** Any sound that is above 80 decibels is extremely harmful to human health.

10. **Assertion (A):** Sound does not need a medium to travel, it can travel in a vacuum.

**Reason (R):** Sound propagates by causing the particles in the medium to vibrate.

## **II. VERY SHORT ANSWER TYPE QUESTIONS (2M):**

1. Name one musical instrument each in which the sound is produced:

- a) By vibrating a stretched string.
- b) By vibrating a stretched membrane.
- c) By vibrating air enclosed in a tube.

2. What is vibration?

3. On a stormy day, why lightning is seen first and thunder heard later?

4. Draw a diagram to represent the sound of –
  - a) Low pitch
  - b) High pitch of some loudness
5. What is the difference between noise and music? Can music become noise sometimes?
6. Why do astronauts fail to hear the sound of each other on the surface of the moon?
7. How does the eardrum help us to hear sound?
8. Distinguish between - Audible and inaudible sound.
9. Which part of the ear transmits sound vibrations to the brain? A vibrating body should oscillate a minimum of how many times per second to make an audible sound for humans?
10. How is the pitch of a sound related to its frequency?

### **III. SHORT ANSWER TYPE QUESTIONS: (3M)**

1. When we put our ears onto a railway line, we can hear the sound of an approaching train even when the train is far off but its sound cannot be heard through the air. Why?
2. Explain how sound is produced in human beings
3. A simple pendulum makes 10 oscillations in 20 s. What is the time period and frequency of its oscillations?
4. A pendulum makes 20 oscillations in one second. Calculate its frequency in Hz.
5. Suggest any four measures to control noise pollution.
6. Why is it harmful to get exposed to loud noise for long periods?
7. The sound from an insect is produced when it vibrates its wings at an average rate of 500 vibrations per second.
  - a) What is the frequency of the vibrations in hertz?
  - b) What is the time period of the vibrations?

#### **Can we hear this sound? Why or why not?**

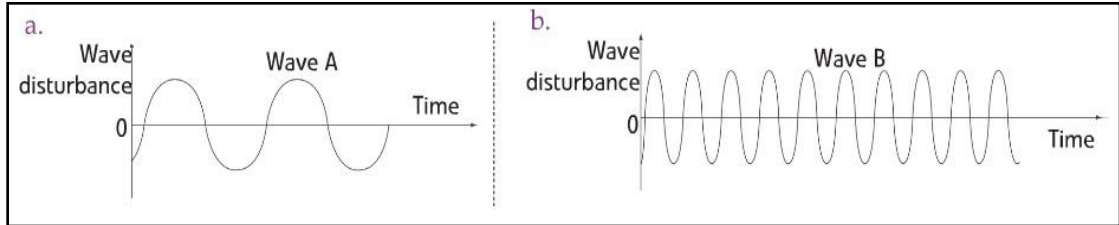
10. The moment you hear a sound does any part of your body vibrate? If yes name the part.

### **V. LONG ANSWER TYPE QUESTIONS (5M):**

1. Explain why, if we strike a steel tumbler with a metal spoon lightly, we hear a feeble sound but if we hit the tumbler hard, a loud sound is heard
2. Boojho saw a cracker burst at night at a distance from his house. He heard the sound of the cracker a little later after seeing the cracker burst. Give a reason for the delay in hearing the sound.
3. The town hall building is very close to Vipin's house. There is a clock on the top of the

town hall building, which rings the bell every hour. Vipin noticed that the sound of the bell appeared to be much clearer at night. Why

4. a) Which of the following waves has a higher pitch?



- b) Which of the following waves has a lower pitch?



