



PHYSICS

BOOKS - ICSE

SOUND

Exercise Objective Type Questions

1. Fill in the blank space by choosing the correct word from the list given below :

List: ultrasonic, frequency, reflecting, sonar,

amplitude

The device used to measure the depth of sea is called _____ .



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2. Fill in the blank space by choosing the correct word from the list given below :

List: ultrasonic, frequency, reflecting, sonar, amplitude

For hearing an echo the minimum distance

between the source of sound and the _____

body is 17 m.



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3. Fill in the blank space by choosing the correct word from the list given below :

List: ultrasonic, frequency, reflecting, sonar, amplitude

The range of _____ vibrations is above 20,000 Hz.



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4. Fill in the blank space by choosing the correct word from the list given below :

List: ultrasonic, frequency, reflecting, sonar, amplitude

The _____ of the sound produced by a vibrating wire decreases, if its length is increased.



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5. Fill in the blank space by choosing the correct word from the list given below :

List: ultrasonic, frequency, reflecting, sonar, amplitude

The loudness of sound depends on the extent of _____ of a vibrating body.



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6. Statement given below is incorrect. Write the correct statement.

The time taken by a vibrating body to complete one vibration is called frequency.



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7. Statement given below is incorrect. Write the correct statement.

In order to produce an echo, the minimum distance between the source of sound and the reflecting body should be 14 m.



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8. Statement given below is incorrect. Write the correct statement.

The characteristic of sound which distinguishes between the sharp sound and dull sound is called loudness.



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9. Statement given below is incorrect. Write the correct statement.

Shriller the sound more is the amplitude of body.



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10. Statement given below is incorrect. Write the correct statement.

Galton whistles are used to train animals.



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11. Write 'true' or 'false' for the following statement :

The range of sonic vibrations is between 20 Hz and 20,000 Hz.



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12. Write 'true' or 'false' for the following statement :

More the amplitude of a vibration, less is its loudness.



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13. Write 'true' or 'false' for the following statement :

With the increase in the frequency of a body, the sound becomes shrill.



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14. Write 'true' or 'false' for the following statement :

Subsonic waves are used in dish washing machines.





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15. Write 'true' or 'false' for the following statement :

Sound energy is reflected by soft and loose surfaces.



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16. The number of vibrations made by a vibrating body in one second is called :

A. wavelength

B. frequency

C. time period

D. amplitude

Answer:



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17. The frequency of ultrasonic waves is:

A. less than 20 Hz

B. between 20 and 10,000 Hz

C. between 20 and 20,000 Hz

D. above 20,000 Hz.

Answer:



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18. The frequency of sound increases when the closed length of an air column :

A. increases

B. decreases

C. remains same

D. none of these

Answer:



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19. The pitch of sound does not depend upon :

A. thickness of vibrating wire

B. area of cross-section of vibrating wire

C. amplitude of vibrating wire

D. length of vibrating wire

Answer:



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20. Loudness does not change with the change in :

A. frequency

B. amplitude

C. distance from source of sound

D. presence of other reflectors

Answer:



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21. Match the statements in Column A, with those in Column B.

Column A	Column B
1. A sound wave of frequency less than 20 Hz.	(a) Quality of sound
2. The repetition of sound on reflection from some hill or high-rise building.	(b) Sonar
3. An instrument used to measure the depth of sea.	(c) Frequency
4. Number of vibrations made by a body in one second.	(d) Echo
5. Term used to describe two sounds of same loudness and same frequency, yet they can be distinguished from each other	(e) Infrasonic



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Exercise Study Questions

1. Define the following term used in the study of sound:

Amplitude



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2. Define the following term used in the study of sound:

Frequency



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3. Define the following term used in the study of sound:

Time period



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4. Derive a mathematical relation between the frequency and the time period of a sound

wave.



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5. What name is given to the sound waves of frequency (a) less than 20 Hz, (b) between 20 Hz and 20,000 Hz (c) above 20,000 Hz.

Which waves among the above are not audible to human ear?



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6. Name three animals who use ultrasonic waves. Explain atleast one animal which uses ultrasonic waves.



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7. Define monotone properly.



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8. State the unit of loudness and write some loudness level and their effect of sound on human ear.



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9. State two laws of reflection of sound.



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10. Name three different materials which reflect sound.



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11. Name three different materials which absorb sound.



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12. What do you understand by the term echo?



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13. State two conditions for the formation of an echo.



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14. What is a sonar?



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15. To what use sonar is put? Explain clearly.



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16. What do you understand by the term loudness of sound?



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17. State two physical factors which determine loudness of sound.



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18. What do you understand by the term pitch of sound?



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19. State one factor which determine pitch of sound.



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20. What do you mean by timbre or quality of sound?



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Theme Assignment

1. Fill in the blank space.

With the decrease in frequency of a vibrating body its pitch becomes _____. (shrill/bass)



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2. Fill in the blank space.

The wind blowing with very high speed produces whistling sound of very high _____ .

(pitch/amplitude)



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3. Fill in the blank space.

_____ is the measure of loudness of sound. (

Hertz/Decibel)



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4. Write true or false for the following statement.

We can easily make out the difference between the sound of a sitar and that of a violin.



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5. Write true or false for the following statement.

Loudness does not depend on the area of vibrating body.



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6. Write true or false for the following statement.

With the decrease in amplitude of a vibrating particle its pitch becomes bass.



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7. The loudness of a sound depends upon the

A. frequency of the vibrating body

B. amplitude of the vibrating body

C. waveform of the vibrating body

D. all of these

Answer:



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8. The sound produced by a jet plane is of very high pitch because of high :

A. amplitude

B. time period

C. frequency

D. wave velocity

Answer:



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9. On which of the following does the pitch of the vibrating string depend?

A. length

B. thickness

C. both (a) and (b)

D. neither (a) nor (b)

Answer:



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10. Musical instruments like Jal Tarang and flute are based on the vibration of air columns of different.

A. lengths

B. areas

C. volumes

D. none of these

Answer:



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11. A sound of single frequency is called a

A. note

B. tone

C. monotone

D. either (a) or (c)

Answer:



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12. Statement given below is incorrect. Write the correct statement.

The characteristic of sound which distinguishes a shrill sound from a bass sound is called loudness of sound.



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13. Statement given below is incorrect. Write the correct statement.

The frequency of a sound wave is directly related to the power it carries.



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14. Statement given below is incorrect. Write the correct statement.

The loudness of sound is considered just audible if it is between 50 dB to 60 dB.



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15. Define the following term with its unit.

Amplitude



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16. Define the following term with its unit.

Frequency



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17. Define the following term with its unit.

Time period



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18. Why do sounds differ? Explain with example.



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19. How can you relate pitch and frequency?



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20. How can you understand pitch and frequency in relation to working of musical instruments.



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21. Define monotone properly.



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22. State the unit of loudness and write some loudness level and their effect of sound on human ear.



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Questions Choose The Correct Option To Fill In The Blank

1. A wave is a disturbance that carries energy (with/without) the transfer of matter.



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2. The region of a sound wave in which particles are (crowded together/ spread apart) is called rarefaction.



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3. The number of vibrations made by a vibrating body in one second is called :



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4. Write 'true' or 'false' for the following statement :

More the amplitude of a vibration, less is its loudness.



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5. Two sounds of the same pitch and loudness can be distinguished by their (frequency/timbre).



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Questions Write T For True And F For False Correct The False Statements

1. If vibrations are of irregular patterns, an unpleasant sound is produced



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2. Thin strings in a guitar give a higher pitch than a thick string.



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3. Explain stringed and wind instruments. Describe how you can change the pitch in them.



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4. Xylophone is a wind instrument. (true or false)



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5. Name three different materials which absorb sound.



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Exercises Section I Name The Following

1. The region of a sound wave in which the molecules are crowded together



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2. The maximum displacement of a vibrating object in a medium from its mean position



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3. Characteristics of a sound which distinguishes shrill sound from a dull sound



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4. The intensity of a sound is a measure of the energy the sound wave is carrying .



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5. Unit that you express for loudness of sound

A. Metre

B. Hertz

C. Decibel

D. Ampere

Answer: C



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6. General term for the distinguishable characteristics of a tone



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7. Repetition of the same tone or same note of unvarying pitch



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8. The kind of sound produced by vibrations of irregular pattern



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Exercises Section I Choose The Correct Option

1. Longitudinal waves can pass through

A. liquids

B. gases

C. solids

D. all of these

Answer:



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2. Pitch depends on

A. frequency

B. amplitude

C. wavelength

D. All of these

Answer:



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3. Amplitude depends on the of the vibrating body

A. length

B. thickness

C. volume

D. area

Answer:



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4. The SI unit of amplitude is

A. m

B. Hz

C. s

D. m^2

Answer:



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5. Guitar, sitar, and violin are Instruments.

A. wind

B. string

C. percussion

D. None of these

Answer:



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6. The frequency of a sound depends on the of the vibrating object.

A. size

B. tightness

C. mass

D. all of these

Answer:



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7. Loudness of a sound depends on

A. amplitude of vibrating body

B. area of vibrating body

C. distance from source

D. All of these

Answer:



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Exercises Section I Write T For True And F For False Correct The False Statements

1. Every particle in a longitudinal wave only vibrates about a fixed position. It does not move from its position with the wave(True or false).



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2. You will always be able to see vibrations in an object. (True or false)



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3. If the vibrations of a vibrating body are fast then the sound is said to be high-pitched. (True or False)



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4. If you pluck harder on a guitar string, or forcefully hit a drum, the sound will be louder.

(True or False)



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5. Most percussion instruments such as cymbals, gong, and tabla do not have a definite pitch and are used for rhythm and impact.(True or false)



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6. Pitch has frequencies that are multiples of the fundamental frequency.



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7. Scientists use light waves in SONAR devices to measure the depth of oceans.



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8. Constant exposure to noise can cause tiredness, headaches, hearing loss, and irritability. (True or False)



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9. Planting trees helps to reduce noise as trees act as natural barriers.



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Exercises Section I Choose The Correct Option To Fill In The Blank

1. Sound (can/cannot) pass through vacuum as there are no particles to transport energy.



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2. (Loudness/Intensity) of sound is a subjective quantity.



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3. (loud/soft) sound can travel a great distance as it is associated with higher energy



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4. The sounds produced by a body are (always/never) pure notes.



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5. An ideal tuning fork should give a pure tone of (many/one) frequency



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6. Greater the distance from the source,
(louder/feeble) is the loudness.



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7. Pitch (does not/does) depend on the distance between the listener and the source.



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Exercises Section II Give Reasons For The Following

1. A tuning fork producing sound will stop producing sound when you touch it.



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2. Sound cannot pass through vacuum.



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3. Thin strings in a guitar give a higher pitch than a thick string.



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4. The sound produced by a large drum is louder than that of a small one.



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5. If the same note is being played on two different musical instruments, our ears can distinguish between the two sounds.



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6. Tractor drivers, factory workers, and others who are exposed to loud noise wear earmuffs.



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Exercises Section II Short Answer Questions

1. What do you mean by longitudinal wave?



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2. Name four characteristics of a wave.



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3. What is the wavelength of a wave?



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



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5. What do you mean by intensity of sound?



[Watch Video Solution](#)

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



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Exercises Section II Long Answer Questions

1. Explain how sound is propagated as a longitudinal wave .



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2. Name the three characteristics of sound.



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3. The loudness of a sound depends upon the



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4. Explain stringed and wind instruments.

Describe how you can change the pitch in

them.



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5. Suggest some methods of control of noise pollution



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6. Write four points on why it is important to understand sound.

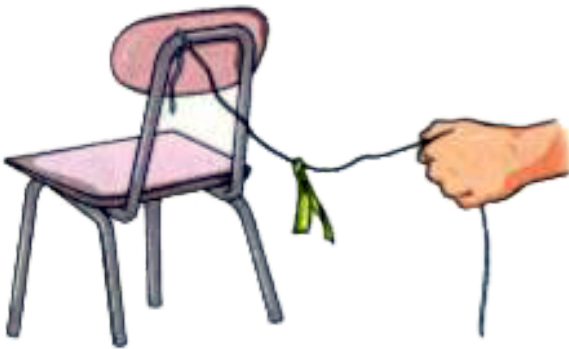


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Picture Study

1. In Figure A, as the rope is being pulled up and down, the ribbon does not move forward.

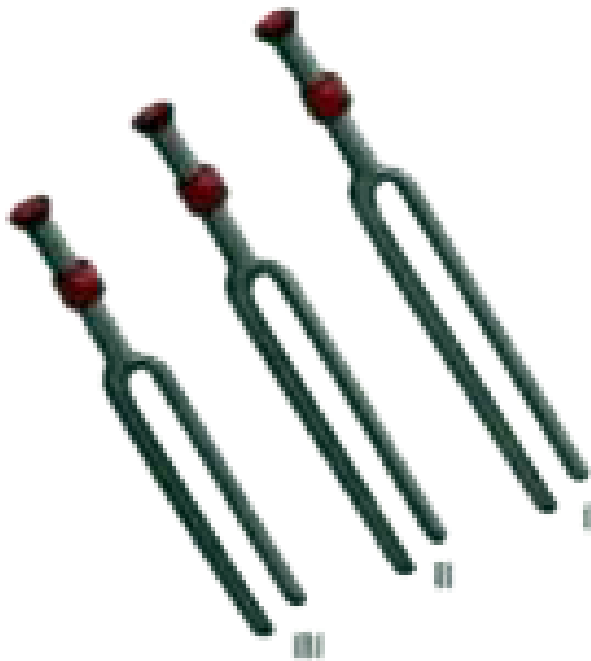
Why?



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2. Look at the three tuning forks given in Figure B. The longest is I, the middle one is II, and the shortest is III. Looking at the length find out which one has a higher pitch than the

others.



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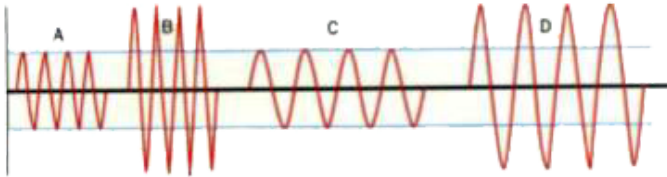
3. From Figure C, find out which wave has

a. low pitch and high volume

b. high pitch and low volume

c. high pitch and high volume

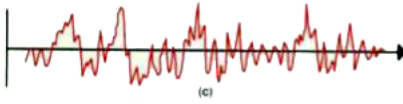
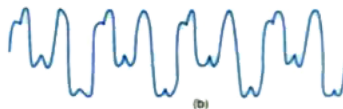
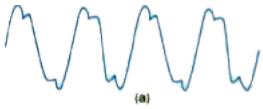
d. low pitch and low volume.



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4. From Figure D, Identify which wave shows noise , and which one shows music . How did

you distinguish ?



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