PHYSICS

BOOKS - PEARSON IIT JEE FOUNDATION

SOUND

Master Your Test

1. How sound is produced ?

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2. How does sound travel from one place to another ?

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3. Mention few mediums through which sound waves can travel.

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4. How do you hear sound ?

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5. Explain when a body is said to be in oscillatory motion .

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6. Expain when does a body produce vibrations.

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7. How do we know the difference between various sounds ? Name the characteristics of sound ?

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8. How is simple pendulum made ?

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9. What is the relationship between time period and frequency of an oscillating body ?

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10. Name any three characteristics that are used to describe Oscillations.

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11. Define the term amplitude.

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12. How can we increase or decrease the amplitude of the vibrations?

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13. Define the term time period of vibration.

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14. What do you understand by one complete oscillation of a simple pendulum ?

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15. How is the sound of a whistle different from the sound of an equally loud drum ?

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16. Mention three conditions on which the pitch of sound depends.

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17. Why do you think guitar, sitar and violin players tune their musical instruments before playing them ?

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18. How is the sound of a whisper different from the sound of a shriek ?

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19. Discuss how loudness depends on amplitude.

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20. Why the sounds of different musical instruments such as violin and guitar, even when played at the same loudness and pitch ?

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21. What do you mean by amplitude of a sound wave ?

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22. State true (T) or false (F).

Watch Video Solution

23. State true (T) or false (F).

We cannot hear sound through water. _____

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24. State true (T) or false (F).

A stretched string would have a higher pitch

than a loosened string _____

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25. State true (T) or false (F).

The larynx is situated just below the windpipe.

_____

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26. State true (T) or false (F).

The speed of sound is maximum in solids.

_____

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27. What happens to the molecules of a medium during

(a) compression and

(b) rarefaction ?

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28. Discuss why sound travels the slowest in gases and fastest in solids.

Watch Video Solution

29. Why a sound of certain amplitude can be heard at much

greater distances in solids than in liquids or gases ?

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30. Discuss why sound waves travel the solwest in gases.

Watch Video Solution

31. Explain why sound does not travel through vacuum.

Watch Video Solution

32. Name the organ which produces sound.

Watch Video Solution

33. How sound is produced through larynx ?

Watch Video Solution

34. Circle the odd one out.

Trachea, Anvil, Hammer

Watch Video Solution

35. Circle the odd one out.

Pinna, Stirrup, Tympanum

Watch Video Solution

36. Answer in one word.

Sounds above the frequency of 20,000 Hz.

_____

Watch Video Solution

37. Answer in one word.

Long coiled tube, filled with a fluid, present in the inner ear. _____

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38. What do you mean by audible and inaudible sounds ?

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39. Give the range in which normal human being can hear sounds.

Watch Video Solution

40. Give the range for below:

audible range

Infrasonic

Ultrasonic

Watch Video Solution

41. Name the three bones which constitute middle ear.

Watch Video Solution

42. Name the inner part of the ear.

Watch Video Solution

43. Explain the function of auditory nerve.

Watch Video Solution

44. Answer the following questions.

Full form of SONAR.

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45. Answer the following questions.

A pattern of sound created due to the combination of a sound and its multiple echoes.

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46. Answer the following questions.

Sounds which are unpleasant or disturbing to the ears.

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47. Name the three categories into which musical instruments are divided.

Watch Video Solution

48. List any two sources of noise pollution.

Watch Video Solution

49. What do you understand by an echo ?

Watch Video Solution

50. Name two good reflectors of sound.

Watch Video Solution

51. Name two good absorbers of sound.

Watch Video Solution

52. Discuss why we can hear our echo clearly in a valley,

but difficult to hear a clear echo in a closed, empty room.

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53. Explain why echoes are also used in SONAR.

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54. Give the examples for below instruments:

Stringed

wing

percussion

Watch Video Solution

55. Give the amplitube for below sounds :

(a) City traffic

(b) Bursting cracker

Watch Video Solution

56. Discuss how can we reduce noise pollution.

Watch Video Solution

57. List two causes of noise pollution .

A. Transport vehicles

B. Industrial machines

C. Planting trees

D. Both A and B

Answer: D

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Track Your Learning I

1. Like heat and light, sound is also a form of _____

A. radiation

B. energy

C. motion

D. force

Answer: B

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2. Sound is produced due to _____

A. motion

B. force

C. vibration

D. oscillation

Answer: c

Watch Video Solution

3. Sound is produced by a source and travels from one place to another through a _____

A. water

B. air

C. oil

D. Both(a),and (b)

Answer: d

Watch Video Solution

4. When a body moves to and fro, or up and down, about a fixed position, it is said to be in _____ motion

A. Oscillatory

B. Vibratory

C. rotatory

D. circular

Answer: a

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5. A flute produces a sound due to the Vibration of air within its _____.

A. Columns

B. rows

C. length

D. None of them

Answer: a

Watch Video Solution

6. A sitar, produces a sound due to the vibrations within _____

A. column

B. string

C. length

D. threads

Answer: b

Watch Video Solution

Track Your Learning Ii

1. The time period of a simple pendulum depends only on _____

A. length of the string

B. amplitude

C. oscillation

D. frequency

Answer: a

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2. Frequency is measured in _____

A. Decibel

B. Hertz

C. Pascal

D. Dalton

Answer: B

Watch Video Solution

3. A simple pendulum oscilates about its mean Position, the movement of the bob from Position Q to A, then from A to B, and then back from B to Q is called _____

A. One complete oscilation

B. two camplete oscilation

C. rest position

D. None of them

Answer: A

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4. The _____ of a sound wave is the measure of the height of the wave.

A. Oscillation

B. amplitude

C. frequency

D. time period

Answer: B

Watch Video Solution

5. Time period of a simple pendulum only depends on the _____ of the string.

A. Oscillation

B. frequency

C. length

D. amplitude

Answer: c

Watch Video Solution

6. The number of oscillations completed by a simple

pendulum in one second is known as its

_____

A. frequency

B. time period

C. oscillation

D. amplitude

Answer: B

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7. The Pitch of a sound is directly related to its

_____

A. amplitude

B. frequency

C. oscillation

D. None of them

Answer: b

 Watch Video Solution

8. The softness or loudness of a sound depends on its _____

A. amplitude

B. frequency

C. Oscillation

D. None of them

Answer: a

Watch Video Solution

9. _____ of sound is proportional to the square of the amplitude of the vibration producing the sound.

A. Shrill

B. Loudness

C. Softness

D. High-pitch

Answer: B

View Text Solution

10. Sounds above _____ becomes noise to human ears.

A. 80 dB

B. 70 dB

C. 50 dB

D. 20 dB

Answer: A

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Track Your Learning Iii

1. Sound travels the slowest in _____

A. gases

B. Solids

C. liquid

D. Oil

Answer: a

Watch Video Solution

2. The molecules in gases are the most spread out, sound waves travel the _____ in them .

A. fastest

B. solwest

C. does not travel

D. None of them

Answer: b

Watch Video Solution

3. The speed of sound in water is _____

A. 1480 $\mathrm{m/s}$

B. 5130 $\mathrm{m/s}$

C. 2250 $\mathrm{m/s}$

D. 1000 $\mathrm{m/s}$

Answer: a

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4. Larynx is situated at the upper end of the _____

A. epiglottis

B. trachea

C. pharynx

D. tongue

Answer: b

View Text Solution

5. When the source bulges or moves outwards, the air molecules present in that space get pushed close together. This is known as a _____

A. Compression

B. rarefaction

C. wave

D. energy

Answer: a

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Track Your Learning Iv

1. The _____ is made up of pinna, the ear canal and the eardrum.

A. middle ear

B. outer ear

C. inner ear

D. tympanum

Answer: b

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2. The _____ is made up of a membrane, which starts vibrating with the frequency of the sound wave that falls on it.

A. eardrum

B. tympanum

C. inner ear

D. pinna

Answer: A

Watch Video Solution

3. The pinna gathers sound waves and leads them towards the _____

A. ear canal

B. ear drum

C. tympanum

D. hammer

Answer: A

Watch Video Solution

Watch Video Solution

4. The _____ pass on the vibrations from the outer ear to the inner.

A. ear canal

B. ear drum

C. tympanum

D. middle ear

Answer: d

Watch Video Solution

5. The inner ear is made up of the _____ which is a long-coiled tube.

A. cochlea

B. hammer

C. anvil

D. stapes

Answer: a

Watch Video Solution

6. Sound waves travel through the ear canal and strike the _____

A. ear drum

B. tympanum

C. ear canal

D. middle ear

Answer: a

Watch Video Solution

7. The _____ pass these vibrations through the auditory nerve towards the brain.

A. cochlea

B. ear drum

C. tympanum

D. ear canal

Answer: a

Watch Video Solution

8. A normal human being can hear sounds in the frequency range of _____.

A. 20 Hz to 20,000 Hz

B. 20,000 to 35,000 Hz

C. 5 Hz to 20 Hz

D. 20,000 Hz to 30,000 Hz

Answer: a

 Watch Video Solution

9. The range above 20,000 Hz is known as _____ .

A. ultrasonic range

B. infrasonic range

C. sonic range

D. None of them

Answer: a

Watch Video Solution

10. Sounds that the human ear can detect are known as _____ .

A. audible sounds

B. inaudible sounds

C. sonic range

D. infrasonic range

Answer: a

Watch Video Solution

Track Your Learning V

1. An _____ is a sound wave that is reflected back when it strikes a surface.

A. echo

B. oscillation

C. reverberation

D. Both(b) and (c)

Answer: a

Watch Video Solution

2. Objects such as curtains, gunny bags, and human bodies are good _____ of sound.

A. reflector

B. absorber

C. oscillation

D. reverberation

Answer: b

View Text Solution

3. Using these echoes, the bats estimate the posi-tions of obstacles in their path, This is known as _____

A. echolocation

B. absorber

C. oscillation

D. reverberation

Answer: a

Watch Video Solution

4. _____ are also used in SONAR (Sound Navigation and Ranging) to find the distance of submatines of the depth of water bodies stuch as seas and oceans.

A. Oscillation

B. Sound waves

C. Echo

D. Reverberation

Answer: c

View Text Solution

5. _____ is created by rhythmic, periodic vibrations usting different kinds of musical instruments.

A. Music

B. Sound

C. Noise

D. Echo

Answer: a

Watch Video Solution

6. In _____ instruments, a vibrating air column produces sound.

A. winged

B. string

C. percussion

D. None of them

Answer: a

Watch Video Solution

7. Sounds as loud as _____ are comfortable to the human ear.

A. 60-65 dB

B. 70 - 80 dB

C. 20 - 25 dB

D. 80 - 100 dB

Answer: a

Watch Video Solution

8. Some examples of _____ instruments include drums, tabla, dholak and mridangam.

A. Percussion

B. stringed

C. wind

D. both (b) and (c)

Answer: a

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Hots Higher Order Thinking Skills

1. Touch the bell when it stops producing sound. Can you feel the vibration? What do you understand by this?

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2. Why the sound of the baby is feeble?

Watch Video Solution

3. Explain how sound travels in liquids medium.

4. The thunder of a lightening in the sky is heard 10 seconds after the flash of light. If the speed of sound is 330 m/s, find the distance of lightening.

5. Why is the voice of children more shrill than that of adults'? Explain.

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6. Why are the walls, roof, seats and steps, of a cinema theatre or auditorium covered with special material ?

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Classroom Corner A Very Short Answer Type Questons Multiple Chioce Questions

1. Sound can travel through

A. gases only

B. solids only

C. liquids only

D. solids,liquids and gases

Answer: d

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2. Voice of which of following is likely to have minimum frequency ?

A. Baby girl

B. Bady boy

C. A man

D. A woman

Answer: a

View Text Solution

3. Time taken by an object to a complete one oscil-lation is called _____

A. Time period

B. Frequency

C. Amplitude

D. None

Answer: a

Watch Video Solution

4. Loudness as deternined the _____ vibration.

A. Amplitude

B. Frequency

C. Length

D. None of them

Answer: b

Watch Video Solution

5. Unit of frequency is _____

A. Hertz

B. dB

C. Newton

D. Pascal

Answer: a

 Watch Video Solution

6. Unwanted sound is called _____

A. Noise

B. Music

C. Loudness

D. Shrill

Answer: a

 Watch Video Solution

7. Eardrum is a part of

A. Sound producing organ

B. Skeletal system

C. Hearing organ

D. Reproductive organ

Answer: c

Watch Video Solution

8. The hearing range of human ear is

A. 20 Hz to 20,000 Hz

B. Less than 20 Hz

C. More than 20,000 Hz

D. 20 Hz to 25,000 Hz

Answer: a

Watch Video Solution

9. The voice box is called

A. Stomach

B. Heart

C. Larynx

D. Mouth

Answer: c

Watch Video Solution

10. Large amplitude of sound vibrations will produce

A. Loud sound

B. Weak sound

C. Slow sound

D. Shreak

Answer: a

Watch Video Solution

11. The pitch of sound depends on

A. frequency

B. amplitude

C. both of these

D. none of these

Answer: a

Watch Video Solution

12. Sound is kind of

A. Work

B. Energy

C. Force

D. None

Answer: b

Watch Video Solution

13. The to and fro motion of an object is called____.

A. Waves

B. amplitude

C. vibration

D. All of the above

Answer: c

Watch Video Solution

14. Voice box or larynx of human process

A. Sound

B. Wind

C. Loudness

D. None

Answer: a

 Watch Video Solution

15. Sound propagates maximum in . . . .

A. Gas

B. Liquid

C. Solid

D. All of these

Answer: c

Watch Video Solution

16. Noise Pollution is harmful for

A. Human

B. Cat

C. Bird

D. All of these

Answer: D

 Watch Video Solution

17. Sound is produced by humans when air passes through the narrow slit between the _____ present in the larynx.

A. Vocal cords

B. Pharynx

C. tongue

D. epiglottis

Answer: a

Watch Video Solution

18. Sound travels in a medium in the form of alter-nate compressions and _____.

A. Rarefactions

B. amplitude

C. Frequency

D. Oscillation

Answer: a

View Text Solution

19. Between a longer and a shorter string, the _____ string will produce a higher pitch.

A. Longer

B. Shorter

C. Both (a) and (b)

D. None of them

Answer: b

Watch Video Solution

20. Sounds of frequency less than 20 Hz are said to belong to the _____ range.

A. Sonic

B. Infrasonic

C. Ultrasonic

D. High-range

Answer: b

Watch Video Solution

21. Musical instruments that produce sound through vibrating air columns are called _____ instruments.

A. Wind

B. Stringed

C. Percussions

D. both (b) and (c)

Answer: a

 Watch Video Solution

22. Two musical notes that have a frequency ratio of 2 : 1 are said to be separated by an octave.

A musical note that is separated by an octave from middle C (256 Hz) has a frequency of _____ .

A. 128 Hz

B. 254 Hz

C. 258 Hz

D. 345 Hz

Answer: a

Watch Video Solution

23. At what frequency we can't the sound of vibra-tions of a pendulum ?

A. Less than 20 Hz

B. More than 20 Hz

C. 20 Hz

D. None of them

Answer: a

Watch Video Solution

24. A violin is a _____ instrument.

A. Wind

B. Stringed

C. Percussion

D. Both (b) and (c)

Answer: b

Watch Video Solution

25. SONAR is _____

A. Special navigation and range

B. Sound Navigation and Ranging

C. Sound nesting and resting

D. Sound nevigation amplifier ranger

Answer: b

Watch Video Solution

26. What is common about all the things mentioned below ?

Explodin canon

Chirping bird

Gushing river

Bursting balloon

Roaring tiger

All the things mentioned above produce Sounds of some kind.

We hear different kinds of sounds all around us every day. Some sounds are loud whereas

Some are soft , some are pleasant whereas some are disturbing .

List the two sounds of each type in the blanks given below.

A. Loud sounds : _____

B. Soft sounds : _____

C. Pleasant sounds : _____

D. Disturbing sounds : _____

Answer:

Watch Video Solution

27. A certain part of an ocean is 9,500 m deep. If the temperature of water is $0^{\circ} C,$ how long will it take for a sound wave transmitted into the ocean from the ship to reach the ship back ?

$$\text{Speed} = \frac{\text{Distance travelled}}{\text{Time taken}}$$

Watch Video Solution

28. Your parents are going to buy a house. They awe been offered one on the road side

and another three lanes away from the road side. Which house would you suggest your parents to buy ? Explain your answer .

Watch Video Solution

29. List sources of noise pollution in your surroundings.

Watch Video Solution

30. Identify the part which vibrates to produce soud in following instruments.

Dholak

Sitar

Flute.

Watch Video Solution

31. Why are the walls of halls and auditoriums covered with soft materials such as curtains ?

Watch Video Solution

32. Do all bodies produce sound ?

Watch Video Solution

33. Which organ in the human body produces sound ?

View Text Solution

34. If we talk softly, a person standing far away cannot hear us. Explain why ?

Watch Video Solution

35. Explosions taking place at the Sun's surface cannot be heard on the Earth . Explain why ?

A. If both assertion and reason are true and reason is the correct explanation of assertion .

B. If both assertion and reason are true but reason is not the correct explanation of assertion .

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer:

 Watch Video Solution

36. Assertion : The sound produced by a flute is shriller than the sound produced by a tabla.

Reason : Frequency produced by flute will be greater than the frequency produced by tabla.

Watch Video Solution

37. Assertion : Sound waves do not travel through vacuum.

Reason : The speed of sound is too small when compared to speed of light.

Watch Video Solution

38. Assertion : Every vibrating body is a source of sound.

Reason : All sounds are audible to us.

Watch Video Solution

39. Assertion : The sounds which cannot be heard pleasantly is called noise.

Reason : The sound above 80 dB becomes painful.

Watch Video Solution

40. Assertion : Humans cannot hear the sound of ultrasonic frequency.

Reason : Human ear can only hear sound of fre-quency range 20 Hz to 20000 Hz.

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Classroom Corner B Short Answer Questions

1. Lightning and thunder take place in the sky at the same time and at the same distance from us. Lightning is seen earlier and thunder is heard latter. Can you explain why?

Watch Video Solution

2. Your parents are going to buy a house. They have been offered one on the roadside and another three lanes away from the roadside.

Which house would you suggest your parents should buy? Explain your answer.

Watch Video Solution

3. What is the difference between noise and music? Can music become noise sometimes?

Watch Video Solution

4. You have just struck a tuning fork with a rub-ber pad and can hear a sound when you

bring the tuning fork close to your ear. However, you cannot see any vibrations in the tuning fork. How will you verify if the tuning fork is vibrat- ing or not ? Explain.

Watch Video Solution

5. How does the larynx produce sound ?

Watch Video Solution

6. Why does sound travel the fastest in solids and the solwest in gases ?

View Text Solution

7. State any three ways of controlling noise pollution .

Watch Video Solution

8. What can sound not travel through ?

Watch Video Solution

9. What is the relationship between pitch and frequency ?

Watch Video Solution

10. Does frequency increase with pitch ?

Watch Video Solution

11. What is the pitch in sound ?

Watch Video Solution

12. What will be the effect on loudness if ampli-tude doubles ?

View Text Solution

13. What is the relation between loudness and amplitude of sound ?

Watch Video Solution

14. What is amplitude, frequency and time period ?

View Text Solution

15. A short flute produced a higher pitch than a long pipe. Give reasons.

Watch Video Solution

16. Does higher Hz mean higher pitch ?

 Watch Video Solution

17. Give a reason for each of the following .

(a) The voices of two people talking at the same pitch and loudness sound different.

(b) The strings present in a guitar are of varying thicknesses.

(c) The time period of a simple pendulum of string length 0.5 m remains the same even

when its amplitude is halved, doubled or tripled.

Watch Video Solution

18. Explain why a-person talking continuously needs to pause in between to inhale air.

Watch Video Solution

19. We can hear echoes more clearly in an empty hall with no furniture than in a small,

empty room with no furniture. Explain why ?

Watch Video Solution

20. A piano produces sound when the hammers connected to its keys strike strings present inside it . Still, a piano is called a percussion instrument and not a string instrument. Give reason.

View Text Solution

21. Movie theatres and concert halls should never be constructed close to hospitals. Explain why ?

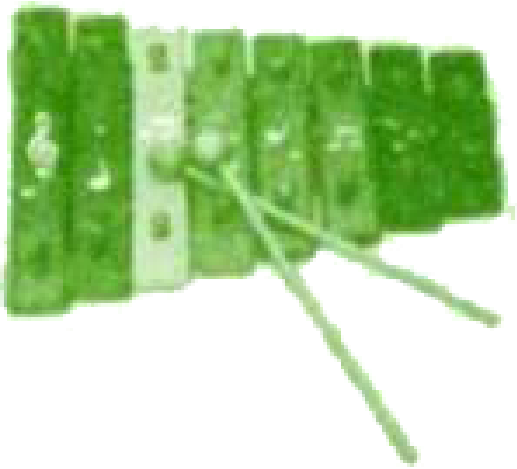
Watch Video Solution

22. A certain amount of reverberation is desirable in large concert halls. Explain why ?

View Text Solution

Classroom Corner C Long Answer Type Questions

1. Look at the picture given below. This musical instrument is called a xylophone



Why do you think a xylophone is made of rods of decreasing lengths ? Which of the rods of the xylophone shown in the picture do you think will have the highest pitch ? Why ?

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2. Two children stood at a distance of 5 m from each other. When one of them talked softly, the other could not hear anything ? The children now made a string phone using two empty tin cans and a string.

One of them then talked into his can with the same softness as before, and the other could hear him dearly.

Explain why the sound was inaudible earlier and audible later ?

View Text Solution

3. Give reasons for below points :

(a) Why do singers regularly perform breathing exercises to increase their lung capacity ?

(b) Why can we not hear the sound produced by a dog whistle ?

(c) Bats cannot see any better in the dark than they can see in light. How, then, are bats able to fly easily in extremely dark places ?

Watch Video Solution

4. Discuss the characteristics of sound in details with diagram.

Watch Video Solution

5. What is meant by quality of sound ? Also,discuss why is the loudness of sound heard by a plucked wire increased when mounted on a sound board ?

View Text Solution

6. How short wave length produce high sound and how long wave length produce low sound ? Explain with diagram.

Watch Video Solution

7. Sketch larynx and explain its function in your own words.

View Text Solution

8. The sound from a mosquito is produced, when it vibrates by its wings, at an average rate of 500 vibrations per seconds. What is the time period of the vibrations ?

Watch Video Solution

9. A pendulum oscillates 40 times is 4 seconds. Find its time period and frequency.

Watch Video Solution

10. Draw a neat labelled diagram to show the structure of the human eye.

Watch Video Solution

11. Using a neat and labelled diagram, explain how sound produced by a source travels through a medium such as air.

Watch Video Solution

12. Draw a neat diagram showing the motion of a simple pendulum. Mark its mean position and extreme positions in the diagram.

Watch Video Solution

13. Research shows that loud sound can have a significant impact on human health, as well as doing devastating damage to ecosystems. Unwanted sound (noise) can damage physiological health. Noise pollution is associated

with several health conditions, including cardiovascular disorders, hypertension, high stress levels, tinnitus, hearing loss, sleep disturbances, and other harmful and disturbing effects.

View Text Solution

Competition Corner Choose The Correct Option For Each Question There Is Only One Correct Response For Each Question

1. Which of these sounds is harmful to human beings ?

A. Aircraft take off

B. Normal speech

C. Chirping of birds

D. Rustling of leaves

Answer: A

 Watch Video Solution

2. Which of these can be classified under wind instruments ?

A. Drum

B. Guitar

C. Sarod

D. Trumper

Answer: d

Watch Video Solution

3. How is sound created in percussion instruments ?

A. By plucking strings

B. By blowing long tube

C. By beating flat surface

D. By pressing electronic keys

Answer: c

View Text Solution

4. What does 'SONAR' stand for ?

A. Sound Narrative and Ranging

B. Sound Navigation and Ranging

C. Sound Narrative and Reverberation

D. Sound Navigation and Reverberation

Answer: b

View Text Solution

5. What is the process by which bats use sound waves to estimate the position of obstacles in their path ?

A. Dislocation

B. Echolocation

C. Percussion

D. Reverberation

Answer: b

View Text Solution

6. Which of these is a good reflector of sound ?

A. Curtain

B. Dogs

C. Gunny bag

D. Wall

Answer: d

Watch Video Solution

7. What is the frequency range of infrasound ?

A. Less than 20 Hz

B. Greater than 20 Hz

C. Between 20-20,000 Hz

D. Greater than 20,000 Hz

Answer: a

Watch Video Solution

8. What is the frequency range of ultrasound ?

A. Less than. 10 Hz

B. Less than 20 Hz

C. Greater than 20,000 hz

D. Between 20 to 20,000 hz

Answer: c

 Watch Video Solution

9. What do you call range of sound that is audible to human beings ?

A. Colonic

B. Infrasonic

C. sonic

D. Ultrasonic

Answer: c

Watch Video Solution

10. Which option correctly describes cochlea in human beings ?

A. Hammer shaped bone

B. Tiny hair projections

C. Thin muscular flap

D. Long coiled tube

Answer: d

Watch Video Solution

11. What is the common name of malleus bone in human beings ?

A. Anvil

B. Cochlea

C. Hammer

D. Stirrup

Answer: c

View Text Solution

12. Which of these constitutes outer ear in human beings ?

A. Anvil

B. Cochlea

C. Hammer

D. pinna

Answer: D

 Watch Video Solution

13. Which factor deeides strength of a sound wave ?

A. Amplitude

B. Frequency

C. Medium

D. Pitch

Answer: a

Watch Video Solution

14. Which of these is necessary for a wave to occur ?

A. frequency

B. Instrument

C. Medium

D. Pitch

Answer: c

Watch Video Solution

15. Which molecules are pushed closer to gether during compression of sound ?

A. Air

B. Sand

C. Sunlight

D. Water

Answer: a

Watch Video Solution

16. What is the function of the narrow slit in the vocal cords of larynx ?

A. Blocks the passage of food to lungs

B. Filters the impurities in the vocal cords

C. Allows the passage of water in the windpipe

D. Allows the passage of air between the vocal cords

Answer: D

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17. Where is larynx located in human beings ?

A. At the sides of lungs

B. At the upper end of tongue

C. At the base of the stomach

D. At the upper end of trachea

Answer: D

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18. Which organ helps in generating sound in human beings ?

A. Oesophagus

B. Larynx

C. Pharynx

D. Tongue

Answer: b

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19. What is the frequency of a simple pendulum that completes 10 oscilations in 2 seconds ?

A. 5 Hz

B. 10 Hz

C. 2.5 Hz

D. 7.5 Hz

Answer: a

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20. On what factor does the pitch of sound depend ?

A. Amplitude

B. time period

C. Distance of sound

D. Frequency of sound

Answer: d

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21. What is the position of the bod of a simple pen-dulum at rest called ?

A. Amplitude

B. Extreme

C. Mean

D. Transcend

Answer: c

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22. Which option correctly describes a tuning fork ?

A. Metllic with two handles and one prong

B. Metallic with one handle and two prongs

C. Wooden with two handles and one prong

D. Wooden with one handle and two prongs

Answer: b

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23. Which of these shows an oscillatory motion ?

A. Catapult

B. Pendulum

C. Spinner

D. Train

Answer: b

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24. Which option correctly describes an oscillatory motion ?

A. Irregular movement

B. To and fro movement

C. Movement in a straight line

D. Movement in a circular path

Answer: b

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25. Select the odd one out.

A. Ear drum

B. Pinna

C. Stirrup

D. tympanum

Answer: c

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26. Select the odd one out .

A. Anvil

B. hammer

C. Stapes

D. Trachea

Answer: d

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27. A builder wants to construct a party hall and is looking for ways to reduce noise pollution

due to parties in this hall. Which of these sugges- tions is incorrect ?

A. The hall should not be built near schools or hospitals

B. The hall should use minimal carpets, cushions and curtains.

C. The hall sould not be used to host parties where music is played loud.

D. The hall should not be used to host parties late at night.

Answer: b

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28. Which of these sources would cause the most noise pollution ?

A. Table saw : 105 dB

B. City traffic : 80 dB

C. Rocket launch : 180 dB

D. Bursting of firecrackers : 140 dB

Answer: c

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29. Which of these is a percussion instrument ?

A. Drums

B. Flute

C. Guitar

D. Sarod

Answer: a

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30. A moving ship sent a sound wave into the water through a SONAR device. If the speed of sound in water

is approximately 1480 "m/s" and the sound wave returned to the ship in 10 s, what is the depth of the water body ?

A. 148 m

B. 740 m

C. 7400 m

D. 14800 m

Answer: d

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31. An echo is produced due to the _____ .

A. Multiplication of sound waves

B. modification of sound waves

C. reflection of sound waves

D. bending of sound waves

Answer: c

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32. Jagan is creating an innovative hall called "The Hall of Echoes", and wants to add things to the hall that would increase echoes. Which of these objects could he add ?

A. Curtains

B. Gunny bags

C. Pillows

D. Walls

Answer: d

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33. The military wants to build a device for com-munication at ultrasonic frequencies.

At which of these frequencies should the device work to meet the military 's requirements ?

A. 25 Hz

B. 220 Hz

C. 10116 Hz

D. 32842 Hz

Answer: d

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34. Identify the frequency range of sounds audible to humans.

A. 0 Hz-20,000 Hz

B. 20 Hz-20,000 Hz

C. 0 Hz - 200,000 Hz

D. 20 Hz - 200,000 Hz

Answer: b

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35. Which of these are the three tiny bones pre-sented in the middle ear ?

A. Cranium, mandible, sternum

B. Pinna,cochlea, tympanum

C. Humerus,femur,radius

D. Hammer,anvil, stirrup

Answer: D

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36. During a scientific study, four similar sound waves were propagated through four differ-ent media. Through which of the four given options would the sound wave have travelled the farthest ?

A. Air

B. Ocean

C. Outer space

D. Rocky mountain

Answer: d

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37. The speed of sound is approximately 1480 "m/s" in water and 330 "m/s" in air. Using this infor-mation,

what can you say about the speed of sound in copper ?

A. Speed must be more than 1480 "m/s"

B. Speed must be approximately 330 "m/s"

C. Speed must be approximately 1480 "m/s"

D. Speed must be more than 330 "m/s" but less than 1480 'm/s"

Answer: a

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38. Through which of these four boxes would sound not be able to travel ?

A. A box filled with air

B. A box filled with wood

C. A box filled with water

D. A box with vacuum

Answer: d

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39. Which of these sentences is incorrect in relation to the propagation of sound waves through a given medium ?

A. Sound waves propagate through solids, liquids as well as gases.

B. Sound waves propagate in the form of compressions and rarefactions.

C. Sound waves gradually dampen and eventually die out

as they propagete through a medium.

D. Sound waves propagate through the actual movement of molecules from the source to the receiver.

Answer: d

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40. When the source of sound bulges or moves outwards, the air molecules present in that

space get pushed close to gether. This is known as a _____

A. damping

B. rarefaction

C. compression

D. complete wave

Answer: c

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41. In human beings, sound is produced due to the _____ .

A. vibration of inhaled air when it passes through the vocal cords

B. vibration of vocal cords in the larynx when air passes through them

C. vibration of lungs when air is pushed out of them, through the larynx

D. air form the lungs passing through the narrow slit between

Answer: d

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42. The sound form a cat and a lion are different, even when they produce sounds of similar fre-quency and amplitude. Which characteristic of sound causes this difference ?

A. Loudness

B. Pitch

C. Speed

D. Timbre

Answer: d

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43. Which of these flutes would have the highest pitch ?

A. Flute of length 25 cm and diameter 1 cm

B. Flute of length 20 cm and diameter 1 cm

C. Flute of length 20 cm and diameter 1.5 cm

D. Flute of length 15 cm and diameter 1.5 cm

Answer: a

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44. When we say that a guitar produces sounds of frequency 25 Hz, it means that the guitar strings produce _____

A. 25 vibrations in one second

B. one oscillation in 25 seconds

C. sounds of amplitude 25 metres

D. sounds with the help of a string of length 25 cm

Answer: a

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45. If the time taken by a simple pendulum to com-plete 16 oscillations is 4 seconds, what is the time period of the simple pendulum ?

A. 4 s

B. 64 s

C. 0.4 s

D. 0.25 s

Answer: d

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46. Ajay placed some beads on the membrane of a drum and struck it with a stick to produce sound. The beads must have

_____

A. stayed still

B. moved side to side

C. moved up and down

D. arranged themselves in a circle

Answer: C

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47. Which of these actions could lead to the pro-duction of sound ?

A. Movement of a car on a straight road

B. Periodic movement of the hands of a clock

C. Vibration of a stretched rubber band upon plucking it

D. Spinning or rotational motion of planet earth about its axis

Answer: c

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48. Which of these is a soft sound ?

A. Roar of a lion

B. Rustling of leaves

C. Honking of vehicles

D. Bursting of firecrackers

Answer: b

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