PHYSICS

BOOKS - HT Olympiad Previous Year Paper

SOUND

Multiple Choice Questions

1. Fill in the blanks with appropriate words: If a violin string is plucked strongly, its amplitude

of vibration _____ (increases/decreases) and the note heard is_____ (louder/softer). If it is plucked lightly, its amplitude of vibration _____(increases/decreases) and the note heard is _____(louder/softer).

A. (i) Increases (ii) Louder (iii) Increases (iv) Louder

B. (i) Decreases (ii) Softer (iii) Decreases (iv) Softer

C. (i) Increases (ii) Louder (iii) Decreases (iv) Softer

D. (i) Decreases (ii) Softer (iii) Increases (iv) Louder

Answer: C

Watch Video Solution

2. Read the given paragraph and answer the following questions

Two metal rulers of lengths 30 cm and 60 cm are kept in such a manner that a 30 cm ruler extends about 15 cm over the edge of a table and a 60 cm ruler extends about 30 cm over the edge of same table. Both the free ends are flicked.

Which of the following statements are correct regarding this?

(i) The metal ruler of length 30 cm is able to vibrate slower.

(ii) The metal ruler of length 30 cm produces a high pitch sound

(iii) The metal ruler of length 60 cm is able to vibrate faster.

(iv) The metal ruler of length 60 cm produces a low pitch sound.

A. Only (i) and (iii) are correct

B. Only (ii) and (iv) are correct.

C. Only (i) and (iv) are correct.

D. Only (ii) and (iii) are correct.

Answer: B

Watch Video Solution

3. Read the given paragraph and answer the following questions

Two metal rulers of lengths 30 cm and 60 cm are kept in such a manner that a 30 cm ruler extends about 15 cm over the edge of a table

and a 60 cm ruler extends about 30 cm over the edge of same table. Both the free ends are flicked.

Read the given statements and select the correct option

Statement 1: The note heard in the vibration of 30 cm ruler is louder when flicked with larger amplitude.

Statement 2: Loudness of a sound depends on the amplitude of vibrations.

A. Both statements 1 and 2 are true and statement 2 is the correct explanation of

statement 1.

B. Both statements 1 and 2 are true but statement 2 is not the correct explanation of statement 1.

C. Statement 1 is true but statement 2 is false.

D. Statement 1 is false but statement 2 is true.

Answer: A

Watch Video Solution

4. In which of the following media can sound travel through?

(i) Glass of water (ii) Balloon full of air

(iii) Iron bar (iv) Vacuum

A. (i) and (ii) only

B. (ii) and (iii) only

C. (i), (ii) and (iii) only

D. (i), (ii), (iii) and (iv)

Answer: C

Watch Video Solution

5. There are two bottles of glass, one bottle is two third filled with water and another bottle is filled one third with water. When we blow across the mouth of each bottle, then

(i) The bottle with the less air in it gives the note of higher pitch

(ii) The shorter the air column, the higher the pitch of the note produced.

A. Both (i) and (ii) are correct and (ii) is the correct explanation of (i).

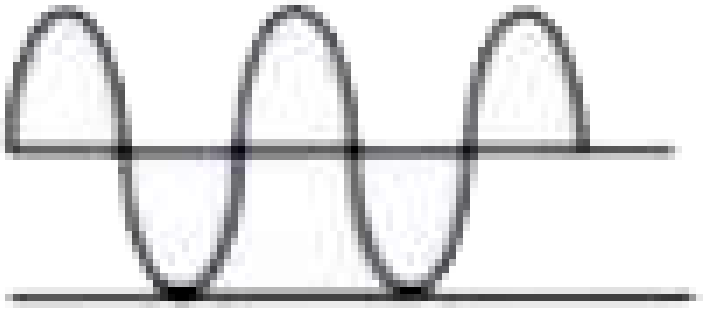
B. Both (i) and (ii) are correct but (ii) is not the correct explanation of (i).

C. Only (i) is correct.

D. Only (ii) is correct.

Answer: A

6. When a tuning fork was struck and brought near a bucket of water, a wave as shown in figure was formed on its surface. If the fork is struck much harder and brought near the surface, what will increase ?



A. Frequency

B. Wavelength

C. Velocity

D. Amplitude

Answer: D

Watch Video Solution

7. Read the given statements and select the correct option.

Statement 1: When Ravi saw a film on space wars, he didn't hear any explosions.

Statement 2 : Sound travels slowest through gases.

A. Both statements 1 and 2 are true and statement 2 is the correct explanation of statement 1.

B. Both statements 1 and 2 are true but statement 2 is not the correct explanation of statement 1.

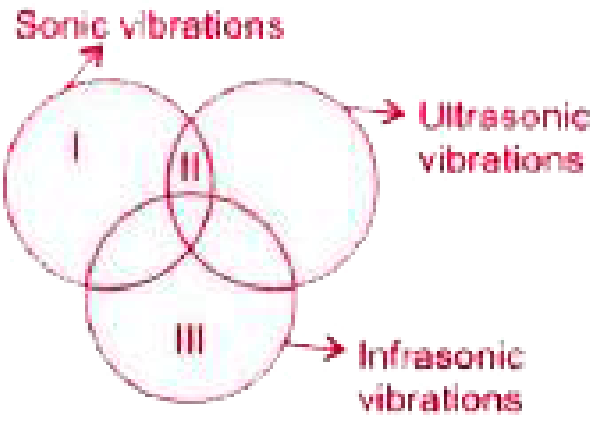
C. Statement 1 is true but statement 2 is false.

D. Statement 1 is false but statement 2 is true.

Answer: B

Watch Video Solution

8. Observe the given Venn diagram and select the correct option



A. $\begin{matrix} I & II & III \\ \text{Human} & \text{Bat} & \text{Rhinoceros} \end{matrix}$

B. $\begin{matrix} I & II & III \\ \text{Rhinoceros} & \text{Human} & \text{Bat} \end{matrix}$

C. $\begin{matrix} I & II & III \\ \text{Bat} & \text{Rhinoceros} & \text{Human} \end{matrix}$

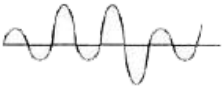
D. $\begin{matrix} I & II & III \\ \text{Elephant} & \text{Bat} & \text{Human} \end{matrix}$

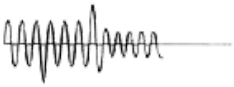
Answer: A

Watch Video Solution

9. Which of the following shows a pleasant sound?

A. 

B. 

C. 

D. 

Answer: A

Watch Video Solution

10. The sound wave with highest frequency is represented by

A. 

B. 

C. 

D. 

Answer: D

Watch Video Solution

11. If the temperature increases, then what happens to the frequency of the sound produced by the organ pipe ?

A. Increases

B. Decreases

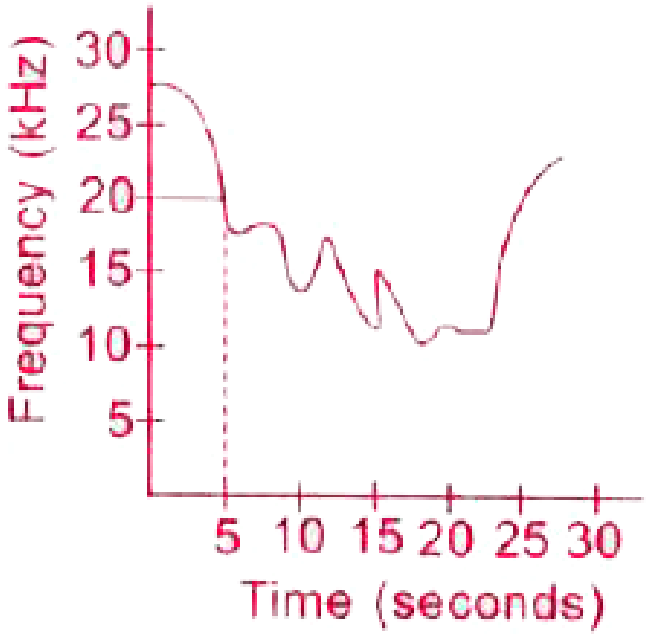
C. Unchanged

D. Can't say

Answer: A

 Watch Video Solution

12. The graph given here shows the frequency of sound emitted by a source for 30 seconds. For how many seconds a normal human being be able to hear the sound?



A. 10 s

B. 20 s

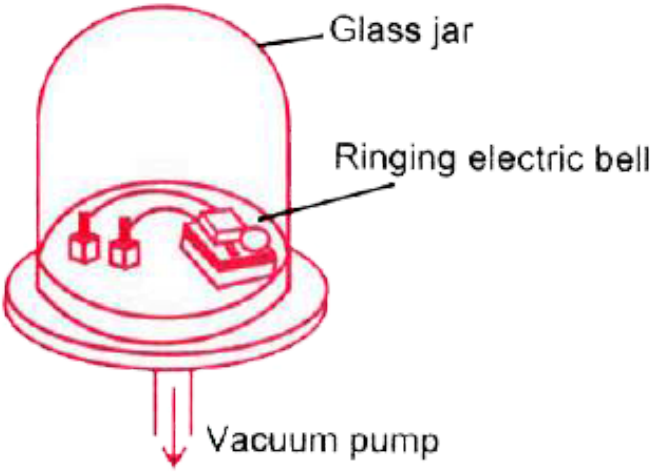
C. 30 s

D. 25 s

Answer: B

Watch Video Solution

13. A student performed an experiment as shown in the figure.



What happened when air was pumped out of the jar and the electric bell rang ?

A. The sound became louder.

B. The sound became fainter first and then louder once all the air was pumped out.

C. The sound could not be heard anymore.

D. The sound was the same as before.

Answer: C

Watch Video Solution

14. A car driving at a constant speed of $25\ \mathrm{m\,s^{-1}}$ heads straight to a mountain. The driver presses the car horn and receives. an echo 3.6 seconds later. Calculate the distance between the car and the mountain when the

driver pressed the horn. (Take the speed of sound in air to be $300 \ \mathrm{m\,s^{-1}}$)

A. 1080 m

B. 585 m

C. 495 m

D. 90 m

Answer: B

Watch Video Solution

15. Assertion : Sound would travel faster on a not summer day than on a cold winter day,

Reason : Velocity of sound is directly proportional to the square of its aboslute temperature.

A. Both statements 1 and 2 are true and statement 2 is the correct explanation of statement 1

B. Both statements 1 and 2 are true but statement 2 is not the correct

explanation of statement 1.

C. Statement 1 is true and statement 2 is false

D. Both statements 1 and 2 are false.

Answer: A

Watch Video Solution

Achievers Section Hots

1. Sound waves were sent down from a ship and they returned after 2 seconds. If the speed of sound in water is $1.5kms^{-1}$ then, the depth of the sea (in km) is _____.

A. 150 m

B. 3 km

C. 1.5 km

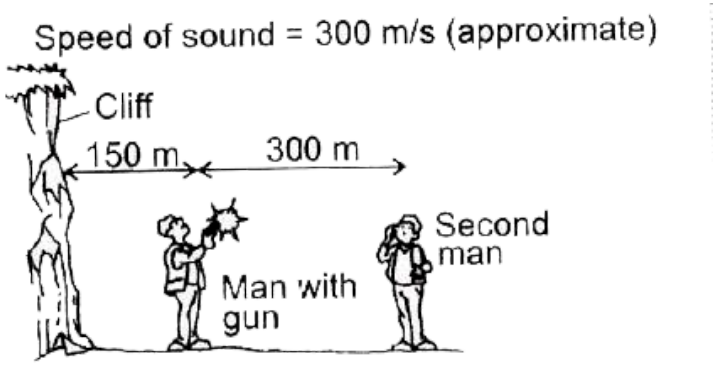
D. 750 m

Answer: C

Watch Video Solution

Watch Video Solution

2. A man fires a gun 150 m from a cliff. A second man who is standing 300 m further away from the cliff hears the gunshot 1 second after he sees the flash. The second man will hear the echo from the cliff



A. 1 second after seeing the flash

B. 2 seconds after hearing the gunshot

C. 2 seconds after seeing the flash

D. 4 seconds after hearing the gunshot.

Answer: C

Watch Video Solution

3. A dog barks in a park and hears its echo after 0.5 seconds. The sound of its bark got reflected by a nearby building. The sound of

speed in air is 346 m/s. The distance between the dog and the building is

A. 86.5 m

B. 80.6 m

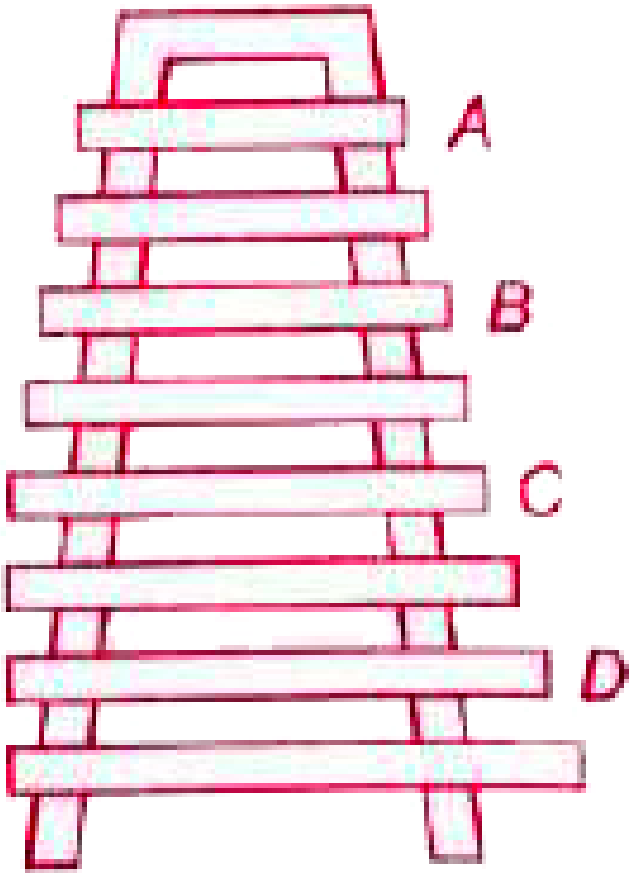
C. 75 m

D. 8.65 m

Answer: A

Watch Video Solution

4. The picture shows a xylophone. A, B, C and D are the rods in it. Which of the following rods has high pitch of the sound and which has low frequency of vibrations?



A.	High pitch D	Low frequency A
B.	High pitch B and C	Low frequency B and C
C.	High pitch A and D	Low frequency A and D
D.	High pitch A	Low frequency D

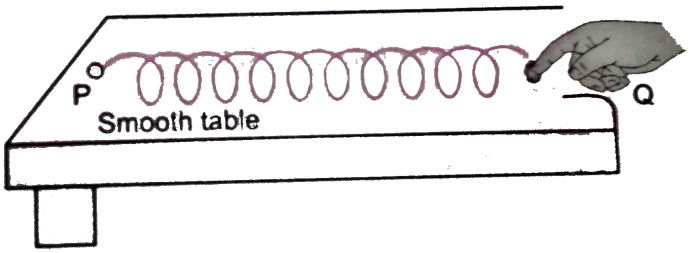
Answer: D

Watch Video Solution

5. A student sets up a slinky PQ on a smooth table top in the manner

How can he produce transverse waves in the

slinky by moving its free end Q ?



A. At an angle of 45° with the table top

B. Backward and forward along the length of the slinky

C. Up and down

D. Left and right

Answer: D

Watch Video Solution