



Video Solution on Website:-

<https://physicsaholics.com/home/courseDetails/95>

Video Solution on YouTube:-

<https://youtu.be/3IGsdJJxYok>

Written Solution on Website:-

<https://physicsaholics.com/note/notesDetailis/44>

- Q 1. A tube closed at one end and containing air is excited. It produces the fundamental note of frequency 512 Hz. If the same tube is open at both the ends the fundamental frequency that can be produced is
- (a) 1024 Hz (b) 512 Hz
(c) 256 Hz (d) 128 Hz
- Q 2. If the frequency of the first overtone of a closed organ pipe of length 33cm is equal to the frequency of the first overtone of an organ pipe open at both the ends, then the length of the open organ pipe will be
- (a) 17 cm (b) 88 cm
(c) 22 cm (d) 44 cm
- Q 3. The Fundamental frequency of a closed organ pipe of length 20 cm is equal to the second overtone of an organ pipe open at both the ends. The length of organ pipe open at both the ends is:
- (a) 120 cm (b) 140 cm
(c) 80 cm (d) 100 cm
- Q 4. If the length of a closed organ pipe is 1m and velocity of sound is 330 m/s, then the frequency for the second note is
- (a) $4 \times \frac{330}{4}$ Hz (b) $3 \times \frac{330}{4}$ Hz
(c) $2 \times \frac{330}{4}$ Hz (d) $2 \times \frac{4}{330}$ Hz
- Q 5. A resonance air column in resonance tube resonates with a tuning fork of 512 Hz at length 17.4 cm. Neglecting the end correction, deduce the speed of sound in air.
- (a) 330 m/s (b) 356 m/s
(c) 315 m/s (d) 412 m/s
- Q 6. A resonance air column shows resonance with a tuning fork of frequency 256 Hz at column lengths 33.4 cm and 101.8 cm. find end-correction
- (a) 0.8 cm (b) 1.6 cm
(c) 0.5 cm (d) 0.18 cm
- Q 7. In a resonance tube experiment to determine the speed of sound in air, a pipe of diameter 5cm is used. The air column in pipe resonates with a tuning fork of



- frequency 480Hz when the minimum length of the air column is 16cm. If the speed of sound in air at room temperature = 6η (in m/sec). Find η
- (a) 53 (b) 44
(c) 56 (d) 60
- Q 8. The frequency of two forks are 320 Hz and 320.1 Hz. The number of beats heard in 1 minute is
- (a) 1 (b) 6
(c) 60 (d) none of these
- Q 9. A closed air column 32cm long is in resonance with a tuning fork . Another open air column of length 66cm is in resonance with another tuning fork . If the two forks produce 8 beats/s when sounded together , find the speed of sound in the air (Consider fundamental frequencies only)
- (a) 337.92 m/s (b) 357.90 m/s
(c) 318.90 m/s (d) 409.80 m/s
- Q 10. In a resonance pipe the first and second resonance are obtained at depths 22.7 cm and 70.2 cm respectively. What will be the end correction?
- (a) 1.05 cm (b) 0.15 cm
(c) 115.5 cm (d) 92.5 cm
- Q 11. An open tube is in resonance (fundamental frequency) with string (frequency of vibration of tube is n_0). If tube is dipped in water so that 75% of length of tube is inside water, then the ratio of the new fundamental frequency of tube to string now will be
- (a) 1 (b) 2
(c) $\frac{2}{3}$ (d) $\frac{3}{2}$
- Q 12. An organ pipe P_1 closed at one end and vibrating in its first overtone pipe P_2 open at both ends vibrating in its third overtone are in resonance with a given tuning fork. The ratio of the lengths of P_1 to that of P_2 is
- (a) $\frac{3}{8}$ (b) $\frac{1}{3}$
(c) $\frac{1}{2}$ (d) $\frac{8}{3}$
- Q 13. 5 beats / second are heard when a tuning fork is sounded with a sonometer wire under tension when the length of the sonometer wire is either 0.95 m or 1 m The frequency of the fork will be :
- (a) 251 Hz (b) 150 Hz
(c) 300 Hz (d) 195 Hz
- Q 14. A tuning fork vibrating with a sonometer having 20 cm wire produces 5 beats per second. The beat frequency does not change if the length of the wire is changed to 21 cm. The frequency of the tuning fork (in Hertz) must be
- (a) 200 (b) 210
(c) 205 (d) 215



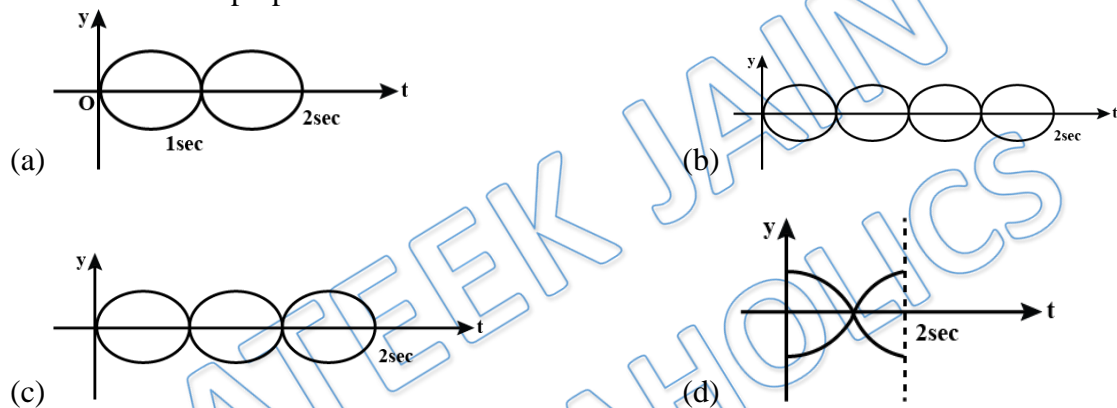
Q 15. Two tuning forks A and B vibrating simultaneously produce 5 beats. Frequency of B is 512 Hz. It is seen that if one arm of A is filed, then the number of beats increases. Frequency of A will be

- (a) 502 Hz (b) 507 Hz
(c) 517 Hz (d) 522 Hz

Q 16. A tuning fork gives 5 beats with another tuning fork of frequency 100 Hz. When the first tuning fork is loaded with wax, then the number of beats remains unchanged, then what will be the frequency of the first tuning fork

- (a) 95 Hz (b) 100 Hz
(c) 105 Hz (d) 110 Hz

Q 17. Two sound sources of frequency 9 Hz and 11 Hz are sounded together then which plot is correct after superposition of sound waves.



Q 18. On producing the waves of frequency 1000 Hz in a Kundt's tube the total distance between 6 successive nodes is 85 cm. Speed of sound in the gas filled in the tube is

- (a) 330 m/s (b) 340 m/s
(c) 350 m/s (d) 300 m/s

Q 19. Two tuning forks have frequencies 380 and 384 Hz respectively. When they are sounded together they produce 4 beats. After hearing the maximum sound how long will it take to hear the minimum sound

- (a) $\frac{1}{2}$ sec (b) $\frac{1}{4}$ sec
(c) $\frac{1}{8}$ sec (d) $\frac{1}{16}$ sec

Q 20. The displacement at a point due to two waves are given by $y_1 = 2 \sin(50\pi t)$ and $y_2 = 3 \sin(58\pi t)$ number of beats produced per second is

- (a) 8 (b) 4
(c) 58 (d) 50



Answer Key

Q.1 a	Q.2 d	Q.3 a	Q.4 b	Q.5 b
Q.6 a	Q.7 c	Q.8 b	Q.9 a	Q.10 a
Q.11 b	Q.12 a	Q.13 d	Q.14 c	Q.15 c
Q.16 c	Q.17 b	Q.18 b	Q.19 c	Q.20 b

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