1. **A tuning fork makes 256 vibrations per second in air. When the velocity of sound is 330 *m*/*s*, then wavelength of the tone emitted is**

(a) 0.56 *m* (b) 0.89 *m* (c) 1.11 *m* (d) 1.29 *m*

1. **Velocity of sound waves in air is 330 *m*/*sec*. For a particular sound in air, a path difference of 40 *cm* is equivalent to a phase difference of 1.6 *π*. The frequency of this wave is**

(a) 165 *Hz* (b) 150 *Hz* (c) 660 *Hz* (d) 330 *Hz*

1. **The ratio of the speed of sound in nitrogen gas to that in helium gas, at 300 *K* is**

(a)  (b)  (c)  (d) 

1. **A stone is dropped into a lake from a tower 500 *metre* high. The sound of the splash will be heard by the man approximately after**

(a) 11.5 seconds (b) 21 seconds (c)10 seconds (d) 14 seconds

1. **A man is standing between two parallel cliffs and fires a gun. If he hears first and second echoes after 1.5 *s* and 3.5*s* respectively, the distance between the cliffs is (Velocity of sound in air = 340 *ms*–1)**

(a) 1190 *m* (b) 850 *m* (c) 595 *m* (d) 510 *m*

1. **The equation of a transverse wave is given by  where *x* and *y* are in *cm* and *t* is in second. Its frequency is**

(a)  (b)  (c)  (d) 

1. **The equation of a progressive wave is given by **

**If the distances are expressed in *cms* and time in seconds, then the wave velocity will be**

(a) 314 *cm*/*sec* (b) 628 *cm*/*sec* (c) 20 *cm*/*sec* (d) 400 *cm*/*sec*

1. **The relation between time and displacement for two particles is given by**

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**The ratio of the intensity of the waves produced by the vibrations of the two particles will be**

(a) 2 : 1 (b) 1 : 2 (c) 4 : 1 (d) 1 : 4

1. **Equation of a progressive wave is given by  where *t* is in seconds and *x* is in meters. The distance through which the wave moves in 8 *sec* is (in meter)**

(a) 8 (b) 16 (c) 2 (d) 4

1. **When two sound waves with a phase difference of , and each having amplitude *A* and frequency , are superimposed on each other, then the maximum amplitude and frequency of resultant wave is**

(a)  (b)  (c)  (d) 

1. **The amplitude of a wave represented by displacement equation  will be**

(a)  (b)  (c)  (d) 

1. **Two tuning forks when sounded together produced 4 *beats*/*sec*. The frequency of one fork is 256. The number of beats heard increases when the fork of frequency 256 is loaded with wax. The frequency of the other fork is**

(a) 504 (b) 520 (c) 260 (d) 252

1. **A tuning fork of frequency 100 when sounded together with another tuning fork of unknown frequency produces 2 beats per second. On loading the tuning fork whose frequency is not known and sounded together with a tuning fork of frequency 100 produces one beat, then the frequency of the other tuning fork is**

(a) 102 (b) 98 (c) 99 (d) 101

1. **The wavelengths of two waves are 50 and 51 *cm* respectively. If the temperature of the room is 20o*C*, then what will be the number of beats produced per second by these waves, when the speed of sound at 0o*C* is 332 *m*/*sec***

(a) 14 (b) 10 (c) 24 (d) None of these

1. **A tuning fork gives 4 beats with 50 cm length of a sonometer wire. If the length of the wire is shortened by 1 cm, the number of beats is still the same. The frequency of the fork is**

(a) 396 (b) 400 (c) 404 (d) 384

1. **A sound source of frequency 170 *Hz* is placed near a wall. A man walking from a source towards the wall finds that there is a periodic rise and fall of sound intensity. If the speed of sound in air is 340 *m*/*s* the distance (in *metres*) separating the two adjacent positions of minimum intensity is**

(a) 1/2 (b) 1 (c) 3/2 (d) 2

1. **A standing wave having 3 nodes and 2 antinodes is formed between two atoms having a distance 1.21 *Å* between them. The wavelength of the standing wave is**

(a) 1.21 *Å* (b) 2.42 *Å* (c) 6.05 *Å* (d) 3.63 *Å*

1. **Stationary waves of frequency 300 *Hz* are formed in a medium in which the velocity of sound is 1200 *metre*/*sec*. The distance between a node and the neighbouring antinode is**

(a) 1 *m* (b) 2 *m* (c) 3 *m* (d) 4 *m*

1. **Two sinusoidal waves with same wavelengths and amplitudes travel in opposite directions along a string with a speed 10 *ms*–1. If the minimum time interval between two instants when the string is flat is 0.5 *s*, the wavelength of the waves is**

(a) 25 *m* (b) 20 *m* (c) 15 *m* (d) 10 *m*

1. **Two travelling waves  and  are superimposed on string. The distance between adjacent nodes is**

(a)  (b)  (c)  (d) 

1. **A string on a musical instrument is 50 *cm* long and its fundamental frequency is 270 *Hz*. If the desired frequency of 1000 *Hz* is to be produced, the required length of the string is**

(a) 13.5 *cm* (b) 2.7 *cm* (c) 5.4 *cm* (d) 10.3 *cm*

1. **A source and an observer move away from each other with a velocity of 10 *m/s* with respect to ground. If the observer finds the frequency of sound coming from the source as 1950 *Hz*, then actual frequency of the source is (velocity of sound in air = 340 *m/s*)**

(a) 1950 *Hz* (b) 2068 *Hz* (c) 2132 *Hz* (d) 2486 *Hz*

1. **A police car horn emits a sound at a frequency 240 *Hz* when the car is at rest. If the speed of the sound is 330 *m/s*, the frequency heard by an observer who is approaching the car at a speed of 11 *m/s*, is** :

(a) 248 *Hz* (b) 244 *Hz* (c)240 *Hz* (d)230 *Hz*

1. **A bus is moving with a velocity of 5 *m/s* towards a huge wall. the driver sounds a horn of frequency 165 *Hz*. If the speed of sound in air is 355 *m/s*, the number of beats heard per second by a passenger on the bus will be**

(a) 6 (b) 5 (c) 3 (d) 4

1. **The apparent frequency of a note, when a listener moves towards a stationary source, with velocity of 40 *m/s* is 200 *Hz*. When he moves away from the same source with the same speed, the apparent frequency of the same note is 160 *Hz*. The velocity of sound in air is (in *m/s*)**

(a) 360 (b) 330 (c) 320 (d) 340

1. **In a resonance tube the first resonance with a tuning fork occurs at 16 *cm* and second at 49 *cm*. If the velocity of sound is 330 *m/s*, the frequency of tuning fork is**

(a) 500 (b) 300 (c) 330 (d) 165

1. **An organ pipe open at one end is vibrating in first overtone and is in resonance with another pipe open at both ends and vibrating in third harmonic. The ratio of length of two pipes is**

(a) 1 : 2(b) 4 : 1 (c) 8 : 3(d) 3 : 8

1. **In a resonance pipe the first and second resonances are obtained at depths 22.7 *cm* and 70.2 *cm* respectively. What will be the end correction**

(a) 1.05 *cm* (b) 115.5 *cm* (c) 92.5 *cm* (d) 113.5 *cm*