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Wave ,Motion and Sound

1.It the amplitude of sound is doubled and the frequency reduced to one-fourth ,the intensity will :
(a)increase by a factor of 2
(b)decrease by a factor of 2
(c)decrease by a factor of 4
(d)remain unchanged

2.If the amplitude of a wave at a distance r from a point source is A, the amplitude at a distance 2r will be :
(a)2A (b)A (c)A/2 (d)A/4

3.When a source of sound is in motion towards a stationary observer ,the effect observed is :
(a)increase in the velocity of the sound only
(b)decrease in the velocity of sound only
(c)increase in the frequency of sound only
(d)increase in both the velocity and the frequency of sound

4.When an aeroplane attains a speed higher than the speed of sound in air a loud bang is heared .This us because
(a)it explodes
(b)its wings vibrate so violently that the bang is heared
(c)the normal engine noises undergo a Doppler shift to generate the bang
(d)it produces a shock wave which is received as the bang

5.Ultrasonic waves can be detected by :
(a)telephone (b)Hebb's method
(c)Kundt's the (d)Quinck 's tube

6.The quality of sound produced by an instruments depends on the :
(a)frequency (b)intensity
(c)number of overtones (d)none of these

7.The same notes being played on sitar and veena differ in :
(a)quality (b)pitch (c)both quality and pitch
(d)none of these

8 .Decibel is a :
(a)musical note (b)musical instruments
(c) unit of intensity (d)unit of intensity

9.When a wave goes from one level to another ,there is a change in the
(a)velocity (b)amplitude (c)frequency
(d)wavelength

10.To raise the pitch of stringed musical instruments the player can:
(a)loosen the string (b)tighten the string
(c)shorten the string (d)Both (b) and (c)

11. How does the speed V of sound in air depends on atmospheric pressure P?
(a)V$\propto P^{-1}$ (b)V V$\propto P^{2}$ (c) V$\propto P^{0}$ (d) V$\propto P^{1/2}$

12. Two waves are given by y_1=a sin $(\omega t - kx)$ and y_2 =a cos (ωt-kx).The phase difference between them is
(a)$\frac{\pi}{4}$ (b)π (c)$\frac{\pi}{8}$ (d)$\frac{\pi}{2}$

13.Doppler shift in frequency does not depend upon:
(a)the actual frequency of the wave
(b)the distance of the source from the listener
(c)the velocity of the source
(d)the velocity of the observer

14.If the density of oxygen is 16 times that of hydrogen ,what will be the rotation of the velocities of sound in them ?
(a)1:4 (b)4:1 (c)2:1 (d)1:16

15.Pitch of sound depends on:
(a)frequency (b)wavelength (c)amplitude
(d)speed

16.Consider the following statements :
(a)Assertion (A):The velocity of sound in air increase due to presence of moisture in it
Reason (R):The presence of moisture in air lowers the density of air of these statements
(a)Both A and R are true and R is the correct explanation
(b)Both A and R are true but R is not the correct explanation
(c)A is true but R is false
(d)A is false but R is true

17.If r is the ratio of the specific heat capacities of a gas of density d and pressure P,then the velocity of sound in it is :

(a)$\sqrt{\frac{p}{\gamma^d}}$ (b)$\sqrt{\frac{d}{\gamma p}}$ (c)$\sqrt{\frac{\gamma^d}{p}}$ (d $\sqrt{\frac{\gamma p}{d}}$

18.The temperature at which the speed of sound in air becomes double of its value at 27° C is:

(a)54° C (b)327° C (d)927° C (d)-123° C

19. If the pressure amplitude of a sound wave is tripled ,then the intensity of the wave increase by a factor :

(a)3 (b)6 (c)9 (d)$\sqrt{3}$

20.The velocity of sound is generally greater in solids than in gases because :

(a)the density of solids is high and the elasticity is low

(b)both the density and elasticity of solids, are very low

(c)the density of solids is low and the elasticity is high

(d)the elasticity of solids is very high

21.As a wave strikes against a wall :

a)its phase changes by 180° ,but velocity does not change

(b)its phase does not change ,but velocity change

(c)its velocity changes and phase too changes by 180°

(d)none of these

22.The Doppler's effect is applicable for :

(a)light wave (b)sound wave

(c)space wave (d)both (a) and (b)

23.Which one of the following explains that all the galaxies are receding from us:

(a)white dwarfs (b)neutron stars

(c)black holes (d)red shift

24. If a sound travels from air to water ,the quantity that remains unchanged is :

(a)velocity (b)frequency

(c)wavelength (d)amplitude

25.Sound waves of wavelength greater than that of audible sound are called :

(a)Infrasonic waves (b)ultrasonic waves

(c)sonic waves (d)seismic wave

26. If V_m is the velocity of sound in moist air and V_d is the velocity of sound in dry air then :

(a)$V_m > V_d$ (b)$V_m < V_d$ (c)$V_m = V_d$

(d)none of these

27. The waves moving from a sitar to a listener in air are :

(a)longitudinal progressive

(b)longitudinal stationary

(c)transverse progressive

(d)transverse stationary

28.When we hear a sound ,we can identify its source from :

(a)wave length of sound

(b)the overtones present in the sound

(c)the intensity of sound

(d)the amplitude of sound

29. Velocity of sound in air :

(i)increase with temperature

(ii)decrease with temperature

(iii)increase with pressure

(iv)is independent of pressure

30. Beats occur because of :

(a)interference (b)reflection

(c)refraction (d)Doppler effect

4th floor shakumbhari complex,chetmani chauraha,Bhelupur
www.indusranger.com indusrangers@gmail.com