PHYSICS

AAKASH INSTITUTE ENGLISH

Mock Test 22: PHYSICS

Example

1. if the temperature is increased then the fundamental frequency of an open pipe is [neglect any expansion]

A. increases

B. decreases

C. remain same

D. maybe increases or decreases

Answer: A

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2. two waves $y_1 = 10\sin(\omega t - Kx)$ m and $y_2 = 5\sin\left(\omega t - Kx + \dfrac{\pi}{3}\right)$ m are

superimposed. the amplitude of resultant wave is

A. $\sqrt{7}$ m

B. $2\sqrt{7}m$

C. $3\sqrt{7}$ m

D. $5\sqrt{7}$ m

Answer: D

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3. interferences of waves

A. is the superposition of two waves with constant phase difference

B. is the maximum positive displacement in a transverse wave

C. in the maximum negative displacement in a transverse wave

D. is the superposition of two waves with variable phase difference

Answer: A

4. A tuning fork produces 4 beats per second when sounded togetehr with a fork of frequency 364 Hz. When the first fork is loaded with a little wax then the number of beats becomes two per second. What is the frequency of the first fork?

A. 365 Hz

B. 361 Hz

C. 360 Hz

D. 364 Hz

Answer: A

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5. the minimum distance between the reflecting surface and source for listening the eco of sound is (take speed of sound $340\frac{m}{s}$)

A. 34 m

B. 8.5 m

C. 17 m

D. 28 m

Answer: C

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6. Fundamental frequency of a organ pipe filled with N_2 is 500 Hz. the fundamental frequency if N_2 is replaced by H_2 is

A. $1000\sqrt{14}Hz$

B. $500\sqrt{14}Hz$

C. 500 Hz

D. 250 Hz

Answer: B

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7. Beats are result of

A. superposition of two waves of equal

frequency

B. constructive interference

C. destructive interference

D. superposition of two waves of nearly

equal frequency

Answer: D

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8. two piano keys are stuck simultaneously. the notes emitted by them have a frequencies 250 Hz and 253 Hz. the number of Beats heard per second is

A. 1

B. 2

C. 3

D. 4

Answer: C

9. two waves $y_1 = 2.5 \sin 100\pi t$ and $y_2 = 2.5 \sin 102\pi t$ (where y is in meter and t is in second) are traveling in same direction. the number of beat heard per second is

A. one

B. two

C. three

D. four

Answer: A

10. The length of two open organ pipes are l and $(l + \delta l)$ respectively. Neglecting end correction, the frequency of beats between them will b approximately.

A. $\dfrac{v}{2}l$

B. $\dfrac{v}{4}l$

C. $v\Delta\dfrac{l}{2}l^2$

D. $v\Delta\dfrac{l}{l}$

Answer: C

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11. two waves of wavelength 100 cm and 102 cm produce 12 beats per second having same velocity. the velocity of each wave is

    A. 320 m/s

    B. 612 m/s

C. 306 m/s

D. 220 m/s

Answer: B

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12. Three sound waves of equal amplitudes have frequencies $(v - 1), v, (v + 1)$. They superpose to give beats. The number of beats produced per second will be

A. 1

B. 2

C. 3

D. 4

Answer: B

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13. IF two tuning forks A and B are sounded together, they produce 4 beats per second. A is then slightly loaded with wax, they produce

two beats when sounded again. The frequency of A is 256. The frequency of B will be

A. 248 Hz

B. 256 Hz

C. 258 Hz

D. 250 Hz

Answer: B

14. a bus is moving with a velocity 4 m/s towards a wall, the driver sounds a horn of frequency 173 Hz . if the speed of sound in air is 350 m/s. the number of beat heard per second by a passanger on the bus will be

   A. one

   B. two

   C. three

   D. four

Answer: D

15. a bus is moving in a circle around a listener with speed 20 m/s of radius 2 m. Bus driver blows a horn with frequency 210 Hz. the frequency of sound heard by the listener is

A. 212 Hz

B. 210 Hz

C. 218 Hz

D. 420 Hz

Answer: B

16. a bus is moving towards and stationary observer with speed 20 m/s blows a horn of frequency 200 Hz. the frequency of sound heard by the observer is approximately (take speed of sound 320 m/s)

A. 188 Hz

B. 200 Hz

C. 226 Hz

D. 213 Hz

Answer: D

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17. A car blowing a horn of frequency 350 Hz is moving normally towards a wall a speed of 5 m/s The beat frequency heard by a person standing between the car and wall is (speed of sound in air =350 m/s)

A. 1

B. 0

C. 3

D. 4

Answer: D

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18. A car is moving with $90 km h^{-1}$ blows a horn of 150 Hz, towards a cliff. The frequency

of the reflected sound heard by the driver will

be (speed of sound in air is $340ms^{-1}$)

A. 100 Hz

B. 150 Hz

C. 170 Hz

D. 130 Hz

Answer: B

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19. Which of the following is correct?

A. Doppler effect is symmetry in case of electromagnetic wave and asymmetric in case of sound wave

B. Doppler effect is asymmetric in case of electromagnetic wave and symmetric in case of sound wave

C. Doppler effect is asymmetric in both electromagnetic as well as sound wave

D. Doppler effect is symmetry in both electromagnetic as well as sound wave

Answer: A

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20. in which of the following case frequency of sound heard by the observer increases?

A. when source are moving away from the stationary observer

B. when observer are moving away from

the stationary source

C. when both observer and source are

moving away from each other

D. when both observer and source are

moving towards each other

Answer: D

21. The perimeters of tow similar triangles $\triangle ABC$ and $\triangle PQR$ are 35cm and 458 cm respectively, then the ratio of the areas of the two triangles is _____.

A. 0.1s

B. 0.2s

C. 0.5s

D. 0.3s

Answer: B

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