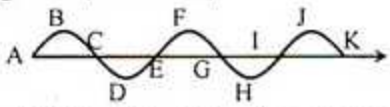
Chapter 7: Waves and Sound

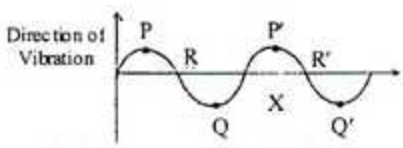
A diagram of a transverse wave is given below.
Answer the questions no. 1 and 2 on the basis of the diagram : *[All Board-18]*



1. Which of the following points are in same phase?
ⓐ A, B, C ⓑ A, C, E
ⓒ B, D, F ⓓ A, E, I — **ⓓ**

2. The correct relation is —
i. $\lambda = CE$ ii. $2\lambda = AI$
iii. $\frac{3}{2}\lambda = CI$
Which one of the following is correct?
ⓐ i and ii ⓑ i and iii
ⓒ ii and iii ⓓ i, ii and iii — **ⓒ**

3.



Which one indicates wave length? *[R.B.-17]*
ⓐ PR ⓑ PQ
ⓒ P'Q' ⓓ PP' — **ⓓ**

4. What is the speed of sound at 10°C in normal pressure? *[C.B.-17]*
ⓐ $332ms^{-1}$ ⓑ $332.6ms^{-1}$
ⓒ $338ms^{-1}$ ⓓ $338.6ms^{-1}$ — **ⓒ**

5. What is the relation between frequency and time period? *[C.B.-17]*
ⓐ Proportional
ⓑ Inversely proportional
ⓒ Proportional of square
ⓓ Inversely proportional of square — **ⓑ**

6. What will be the minumum hearing distance of the reflections to hear an echo of sound at 40°C in air? *[Ctg.B.-17]*
ⓐ 17.8 m ⓑ 17.6 m
ⓒ 17.4 m ⓓ 16.6 m — **ⓐ**

7. If the frequency of sound is increased in a definite medium, which one of the following will decrease? *[S. B. 2017]*
ⓐ Wave velocity ⓑ Amplitude
ⓒ Time period ⓓ Phase — **ⓒ**

8. Time period of a sound wave is 5.8×10^{-4}s and velocity of sound is $320ms^{-1}$. What is the wavelength of the sound wave? *[J.B.-17]*
ⓐ 0.19m ⓑ 1.86m
ⓒ 18.56m ⓓ 55.17m — **ⓐ**

9. Which one is the example of infrasonic sound? *[B.B.-17]*
ⓐ the sound used in ultrasonography
ⓑ the sound used in kidney to turn the stone into dust
ⓒ the sound produced during earthquakes
ⓓ the sound used to destroy the harmful germs — **ⓒ**

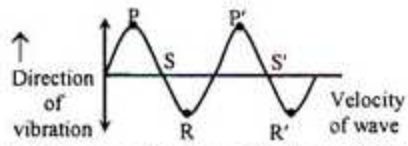
10. What times will be the intensity of sound if the amplitude is four times? *[B.B.-17]*
ⓐ 2 ⓑ 4
ⓒ 8 ⓓ 16 — **ⓓ**

11. What will be the velocity of sound in 40°C temperature? *[B.B.-16]*
ⓐ $332\ ms^{-1}$ ⓑ $350\ ms^{-1}$
ⓒ $356\ ms^{-1}$ ⓓ $362\ ms^{-1}$ — **ⓒ**

12. Which animal can hear infrasonic sound? *[D.B.-16]*
ⓐ Bat ⓑ Elephant
ⓒ Bee ⓓ Man — **ⓑ**

13. Dhaka radio station broadcasts programme in 630 KHz in medium wave. The velocity of radio wave is $3\times10^{8}ms^{-1}$. What is the wave length of it's? *[R.B.-16]*
ⓐ 476190 m ⓑ 476.19 m
ⓒ 476190 cm ⓓ 476.19 cm — **ⓑ**

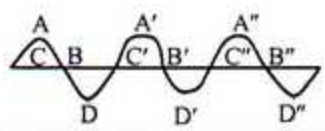
14. What type of sound is used to remove stone from teeth and kidney? *[R.B.-16]*
ⓐ Mechanical sound ⓑ Audible sound
ⓒ Ultrasonic sound ⓓ Infrasonic sound — **ⓒ**



15. Which is the opposite phase in figure? *[R.B.-16]*
ⓐ P and P' ⓑ S and S'
ⓒ R and R' ⓓ P and R — **ⓓ**

16. Which wave of the following does not require any medium for its transmission? *[Dj.B.-16]*
ⓐ Sound wave ⓑ Mechanical wave
ⓒ Electromagnetic wave ⓓ Water wave — **ⓒ**

17.



In case of the points of the same phase which one of the following is correct? *[Dj.B.-16]*
ⓐ A, B, D ⓑ A, A', A''
ⓒ A', B', C' ⓓ A'', B'', D'' — **ⓑ**

18. What is the velocity of sound in water at 20°C temperature? *[C.B.-16]*
ⓐ $344\ ms^{-1}$ ⓑ $1350\ ms^{-1}$
ⓒ $1400\ ms^{-1}$ ⓓ $1450\ ms^{-1}$ — **ⓓ**

19. What is the angle between the direction of vibrating particle and the direction of propagation of wave in transverse wave? *[C.B.-16]*
ⓐ 90° ⓑ 45°
ⓒ 30° ⓓ 0° — **ⓓ**

20. Characteristic of musical sound is — *[Ctg.B.-16]*
ⓐ velocity of sound ⓑ intensity of sound
ⓒ frequency of sound ⓓ wavelength of sound — **ⓑ**

21. Under 10°C temperature the velocity of sound is 338 ms^{-1}. What is the velocity of sound in vacuum when temperature is 30°C? *[S.B.-16]*
ⓐ $1014\ ms^{-1}$ ⓑ $350\ ms^{-1}$
ⓒ $332\ ms^{-1}$ ⓓ $0\ ms^{-1}$ — **ⓓ**

22. At what temperature, the velocity of sound increases three times? *[S.B.-16]*
ⓐ 996°C ⓑ 1107°C
ⓒ 1328°C ⓓ 1660°C — **ⓓ**

23. What is the velocity of sound in the air at temperature 20°C? *[J.B.-16]*
ⓐ $1450ms^{-1}$ ⓑ $5130ms^{-1}$
ⓒ $344ms^{-1}$ ⓓ $340ms^{-1}$ — **ⓒ**

24. What will be the minimum distance between the source and the reflector to hear an echo? *[J.B.-16]*
ⓐ 17.5m ⓑ 17m
ⓒ 16.6m ⓓ 16.3m — **ⓒ**

25. Which one transformed sound energy into electric energy? *[B.B.-16]*
ⓐ Microphone ⓑ Diode
ⓒ Transistor ⓓ Speaker — **ⓐ**

26. The velocity of sound is highest in which media? *[B.B.-16]*
ⓐ Solid ⓑ Liquid
ⓒ Gas ⓓ Plasma — **ⓐ**

27. A person stands 16.6m away from the reflector but cannot hear echo. Because— *[Ctg.B.-16]*
i. temperature of air is less than 0°C
ii. velocity of sound was greater than $332ms^{-1}$
iii. the sound came back within 0.1 sec
Which one is correct?
ⓐ i & ii ⓑ i & iii
ⓒ ii & iii ⓓ i, ii & iii — **ⓒ**