

## MDCAT Physics Chapter 6 Waves Online Test

Sr	Questions	Answers Choice
1	A longitudinal sinusoidal wave has wavelength of 1cm and a period of 2sec. Its wavevelocity is:	A. 50 cm/ sec B. 0.5 cm/ sec C. 5 m/ s D. 0.005 m/ sec
2	The fundamental frequency of a closed organ pipe is 50 Hz. The frequency of second overtone is	A. 100hz B. 150hz C. 60hz D. 250hz
3	The frequency of the fundamental mode of open at one organ pipe is 400 Hz. If one end of pipe is closed the fundamental frequency will be	A. 800 Hz B. 600 Hz C. 400 Hz D. 200 Hz
4	In a closed organ pipe, the fundamental frequency is f. What will be the ratio of the frequencies of the next three overtones?	A. 2 : 3 : 4 B. 3 : 7 : 11 C. 3 : 4 : 5 D. 3 : 5 : 7
5	If source and observer are moving towards each other with same speed and after crossing they are receding each other then frequency observed by observer:	A. Decreases B. Remains constant C. Increases D. First Increases then decreases
6	A particular wavelength received from a galaxy is measured on earth and is found to be 5% more than that its wave length on earth. Hence galaxy is	A. Moving towards earth B. Going away from earth C. Stationary with respect to earth D. None
7	In which of the following, Doppler's effect is not applicable?	A. To find speed of satellite B. To find objects under water C. To find speed of star D. To tune a musical instrument
8	A string vibrates in 1 loop has frequency 25 Hz if it moves in 2 loops its frequency would be:	A. 25 Hz B. 50 Hz C. 12.5 Hz D. 5Hz
9	A progressive sound wave is a means of transferring energy. A progressive sound wave of constant frequency is generated in air. The intensity of energy transfer is directly proportional to another of the wave parameters. Which of the following is correct?	A. $\intensity \propto (\text{amplitude})^2$ B. $\intensity \propto (\text{frequency})^2$ C. $\intensity \propto (\text{wavelength})^2$ D. $\intensity \propto (\text{speed})^2$
10	A sonar depth finder in a boat uses sound signals to determine the depth of water. Four seconds after the sound leaves the boat it returns to the boat because of reflection from the bottom. Assume the speed of sound in water is 1,460 meters per second. The depth of the water is, in meters, :	A. 2,200 B. 4,800 C. 4,400 D. 2,920
11	An organ pipe open at both ends and another organ pipe, closed at one end will resonate with each other, if their lengths are in ratio of	A. 1:1 B. 1:4 C. 2:1 D. 1:2
12	If the tension in a string stretched between two fixed points is made four times, the frequency of the fundamental harmonic will become:	A. Two times B. Three times C. Four times D. Six times
13	A whistle is revolved with high speed in a horizontal circle of radius R. to an observer at the centre of the circle the frequency of the whistle will appear to be:	A. Decreasing B. Increasing C. Both D. Constant
14	A listener observes the frequency "f" of stationary source. If it move toward with 3 times of velocity of sound. Then the apparent frequency of the sound will be	A. f B. 3f C. f/2 D. 4f

15	The wavelength of light observed on the earth, from a moving star is found to decrease by 0.05%. Relative to the earth the star is	<p>A. moving away with a velocity of <math>1.5 \times 10^5</math> m/s</p> <p>B. moving away with a velocity of <math>1.5 \times 10^4</math> m/s</p> <p>C. coming closer with a velocity of <math>1.5 \times 10^5</math> m/s</p> <p>D. coming closer with a velocity of <math>1.5 \times 10^4</math> m/s</p>
16	The spectrum of a star's light is measured and the wavelength of one of the lines as the sodium's line is found to be 589 nm. The same line has the wavelength of 497 nm when observed in the laboratory. This means the star is	<p>A. Moving away from the earth</p> <p>B. Moving towards the earth</p> <p>C. Stationary</p> <p>D. Revolving around the planet</p>
17	A closed organ pipe and an open organ pipe have their first overtone identical frequency. Their lengths are in ratio	<p>A. 3:4</p> <p>B. 1:2</p> <p>C. 2:3</p> <p>D. 3:5</p>
18	When an observer moves towards a stationary source with a speed equal to $\frac{1}{5}$ times of speed of sound, the percentage increase in the frequency of sound is:	<p>A. 20%</p> <p>B. 40%</p> <p>C. 5%</p> <p>D. 10%</p>
19	A closed organ pipe and an open organ pipe have their first overtones of identical frequency. Their respective lengths are in the ratio:	<p>A. 1 : 2</p> <p>B. 4 : 3</p> <p>C. 2 : 3</p> <p>D. 3 : 5</p>
20	The maximum wavelength of a transverse wave that can be set up in a string of length $L$ is	<p>A. <math>L</math></p> <p>B. <math>2L</math></p> <p>C. <math>V</math></p> <p>D. <math>4L</math></p>