

MDCAT Physics Online Test

Sr	Questions	Answers Choice
1	A sonometer wire 100 cm in length has a fundamental frequency of 330 Hz. The velocity of propagation of waves along the wire is	A. 115m/sec B. 115m/sec C. 660m/sec D. 990m/sec
2	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
3	A stationary wave is established in a string which vibrates in four segments at a frequency of 120 Hz. Its fundamental frequency is:	A. 15Hz B. 60Hz C. 30Hz D. 430Hz
4	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
5	Bats navigate and find food by:	A. Ultrasonic B. Echolocation C. Refraction
6	A church organ consist of open ended pipes ranging from 4m to 4 mm, if the speed of sound is considered as 400 m/s then the min and max frequency is:	A. 400 Hz and 4 kHz B. 100 Hz and 100 kHz C. 50 Hz and 50kHz D. 400 Hz and 400 kHz
7	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	A. Moving away from the earth B. Moving towards the earth C. Stationary D. Revolving around the planet
8	Which one is the case when the wavelength is actually changed?	A. When source move relative to observer B. When observer move relative to source C. When observer moves around a stationary source at the center of circle D. When the relative displacement between source and observer is zero
9	The maximum wavelength of a transverse wave that can be set up in a string of length L is	A. L B. 2L C. V D. 4L
10	When an observer moves towards a stationary source with a speed equal to 1/5 times of speed of sound, the percentage increase in the frequency of sound is:	A. 20% B. 40% C. 5% D. 10%
11	In closed end organ pipe, the frequency of first harmonic is 300 Hz. The frequency of third overtone is :	A. 900 Hz B. 1500 Hz C. 2100 Hz D. 600 Hz
12	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
13	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
14	A closed organ pipe and an open organ pipe have their first overtones of identical frequency. Their respective lengths are in the ratio:	A. 1 : 2 B. 4 : 3 C. 2 : 3 D. 3 : 5

15	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
16	When temperature increases, frequency of organ pipe:	A. Decreases B. Remains the same C. Increases D. Becomes zero
17	A 4 m long string fixed at its ends resonate in 4 segments. The wavelength of the waves:	A. 4m B. 0.5m C. 2m D. 0.25 m
18	With the propagation of longitudinal waves through a material medium, the quantities transferred in the direction of propagation are:	A. Energy, momentum and mass B. Energy and momentum C. Energy and mass D. Energy
19	It is a common characteristic of all types of wave motion that	A. Particles move up and down B. Particles move back and forth C. Energy is transferred without the transport of particles D. A material medium transmits the disturbance
20	A wave which consists of a single, non-repetitive disturbance is called a	A. Continuous wave B. Longitudinal wave C. Pulse D. Transverse wave
21	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
22	Wavelength of the wave is the distance between the particles of the medium having a difference of:	A. Zero B. n C. $2n$ D. $\frac{n}{2}$
23	A longitudinal sinusoidal wave has wavelength of 1cm and a period of 2sec. Its wave velocity is:	A. 50 cm/ sec B. 0.5 cm/ sec C. 5 m/ s D. 0.005 m/ sec
24	For a particle in circular motion the centripetal acceleration	A. may be more or less than its tangential acceleration B. equal to its tangential acceleration C. more than its tangential acceleration D. less than its tangential acceleration
25	A body crosses the topmost point of a vertical circle with critical speed. Its centripetal acceleration, when the string is horizontal will be	A. 4g B. 3g C. g D. 6g
26	A body revolved around the sun 27 times faster than the earth what is the ratio of their radii	A. 1/27 B. 1/4 C. 1/9 D. 1/3
27	The force which can do no work on the body on which it acts:	A. Frictional force B. Elastic force C. Gravitational force D. Centripetal force
28	For a particle moving in uniform circular motion	A. Velocity is transverse and acceleration is radial B. Velocity is radial and acceleration is transverse C. Both velocity and acceleration are radial D. Both velocity and acceleration are transverse
29	A particle revolves round a circular path with a constant speed. The acceleration of the particle is	A. A long the circumference of the circle B. Along the tangent C. Along the radius D. Zero
30	Geo stationary satellite remains	A. Stationary B. Both "A" & "B" C. Annear

		<p>C. 12 hours</p> <p>D. None of them</p>
31	Which statement about geostationary orbit is false?	<p>A. A geostationary orbit must be directly above the equator</p> <p>B. All satellite in a geostationary orbit must have the same masses</p> <p>C. The period of geostationary orbit must be 24 hours</p> <p>D. There is only one possible radius for a geostationary</p>
32	When a particle moves in a uniform circular motion. It has:	<p>A. Radial velocity and radial acceleration</p> <p>B. Tangential velocity and radial acceleration</p> <p>C. Tangential velocity and tangential acceleration</p> <p>D. Radial velocity and tangential acceleration</p>
33	The ratio of angular speeds of minute hand and hour hand of a watch is:	<p>A. 1: 12</p> <p>B. 6: 1</p> <p>C. 12: 1</p> <p>D. 1: 6</p>
34	The geostationary satellite is:	<p>A. Stationary</p> <p>B. Rotating very fastly</p> <p>C. Rotating with the period of earth</p> <p>D. Rotating very slowly</p>
35	The radius of orbit of a geostationary satellite depends upon:	<p>A. Mass of satellite and its time period</p> <p>B. Mass of satellite and mass of earth</p> <p>C. Mass of earth, mass of satellite and time period of satellite</p> <p>D. Mass of earth and time period of earth</p>
36	A point on the rim of wheel 400 cm in diameter has a velocity of 1600 cms ⁻¹ . The angular velocity of the wheel is:	<p>A. 6 rad/s</p> <p>B. 4 rad/s</p> <p>C. 2 rad/s</p> <p>D. 8 rad/s</p>
37	In uniform circular motion, the factor that remains constant is:	<p>A. Linear velocity</p> <p>B. Acceleration</p> <p>C. Speed</p> <p>D. All of these</p>
38	A stone of mass 0.5kg tied with a string of length 1m is moving in a horizontal circle with a speed of 4ms ⁻¹ . The tension acting on the string in newton is:	<p>A. 2</p> <p>B. 0.2</p> <p>C. 8</p> <p>D. 0.8</p>
39	The work done to keep the satellite in the given orbit is.	<p>A. Zero</p> <p>B. infinity</p> <p>C. unit</p> <p>D. can't be decided</p>
40	The time period of a geostationary satellite above the surface of the earth is.	<p>A. 24 hours</p> <p>B. 12 hours</p> <p>C. 365 days</p> <p>D. none of these</p>