MDCAT Physics Online Test

Sr	Questions	Answers Choice
1	The wavelength of light observed on the earth, form a moving star is found todecrease by 0.05%. Relative to the earth the star is	A. moving away with a velocity of 1.5 x 10⁵m/s B. moving away with a velocity of 1.5 x 10⁴m/s C. coming closer with a velocity of 1.5 x 10⁵m/s D. coming closer with a velocity of 1.5 x 10⁴m/s
2	The frequency of the fundamental mode of open at one organ pipe is 400 Hz. Ifone end of pipe is closed the fundamental frequency will be	A. 800 Hz B. 600 Hz C. 400 Hz D. 200 Hz
3	A closed organ pipe and an open organ pipe have their first overtone identical infrequency. Their lengths are in ratio	A. 3:4 B. 1:2 C. 2:3 D. 3:5
4	When passes from medium to another, deviate from its path is called	A. reflection B. refraction C. diffraction D. transmission
5	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
6	The fundamental frequency in a stretched string is 10 Hz. To double the frequency, the tension in it must be changed to:	A. T₂ = 2T₁ B. T₂ = 4T₁ C. T₂ = T₁ D. none of these
7	The frequency of an open pipe is f. if one end is closed then its fundamental frequencywill be:	A. f/2 B. 3f/4 C. f D. 2f
8	Where in standing wave, do the vibrations of the medium occur?	A. Only at the nodes B. Only at the antinodes C. At all points between the nodes D. At all points between the antinodes
9	A sonar depth finder in a boat uses sound signals to determine the depth of water. Fourseconds after the sound leaves the boat it returns to the boat because of reflection fromthe 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
10	A string vibrates in 1 loop has frequency 25 Hz if it moves in 2 loops its frequencywould be:	A. 25 Hz B. 50 Hz C. 12.5 Hz D. 5Hz
11	A progressive sound wave is a means of transferring energy. A progressive sound waveof constant frequency is generated in air. The intensity of energy transfer is directlyproportional to another of the wave parameters. Which of the following is correct?	A. Intensity □ (□□□□□□□□□□)² B. Intensity □ (□□□□□□□□ □□□□)² C. Intensity □ (□□□□□) ² D. Intensity □ (□□□□□□□□□□*h*)²
12	If a transverse wave has a speed of 10 m/ sec and frequency of 10 cycle/ sec itswavelength is:	A. 1 m B. 10⁻² cm C. 10 m D. 10 cm
13	A point on the rim of a wheel 4m in diameter has a velocity of 1600 cm s-1. The angular velocity of the wheel is	A. 2 rad s⁻¹ B. 4 rad s⁻¹ C. 6 rad s⁻¹ D. 8 rad s⁻¹

14	A body moving in a circular path with a constant speed has a	A. Constant velocity B. Constant kinetic energy C. Constant acceleration D. Constant displacement
15	For a particle in uniform circular motion the relation a = r □ of accelerations hold. The acceleration 'a'	A. is centripetal acceleration B. Is tangential acceleration C. is radical acceleration D. both A and B
16	A particle is moving with constant speed by keeping itself at constant distance from a fixed point in a given plane. Its motion is	A. Circular motion B. Uniform circular motion C. Uniform circular motion with fixed axis of rotation D. Uniform circular motion with axis of rotation not defined
17	In uniform circular motion, the factor that remains constant is	A. Linear velocity B. Centripetal force C. Acceleration D. speed
18	The mud flies off the tyre of a fast moving car in the direction	A. parallel to the moving tyre B. anti parallel to the moving tyre C. tangent to the moving tyre D. none of these
19	Two artificial satellites of unequal masses are revolving in a circular orbit around the earth with a constant speed. Their time periods:	A. Will be different B. Will depend on their masses C. Will be same D. Will depend upon the place of their projection
20	The angular momentum changes form 2 units to 6 units in 4s. the torque is	A. 1 unit B. 3/2unit C. 1/2unit D. 4unit
21	For a body moving with constant speed in a horizontal circle, which of the following remains constant?	A. Velocity B. Centripetal force C. Acceleration D. Kinetic energy
22	A body is moving in a circle with a constant speed. it has	A. a constant velocity B. a constant acceleration C. a velocity of constant magnitude D. an acceleration of constant magnitude
23	If a rotating body is moving counter clockwise, direction of angular velocity will be	A. along linear velocity B. towards the center C. along the axis of rotation D. away from center
24	A satellite moving round the earth constitute	A. An inertial frame of reference B. Non inertial frame C. Neither inertial nor non inertial D. Both inertial and non-inertial
25	The force which provides the necessary centripetal force to keep the mud in circular path is called	A. cohesive force B. adhesive force C. frictional force D. gravitational force
26	The direction of angular velocity is along	A. Tangent to the circle B. Axis of rotation C. Inward the radius D. Out ward of the radius
27	If a car moves with a uniform speed of 2 ms-1 in a circle of radius 0.4m. Its angular speed is	A. 4 rad. s⁻¹ B. 1.6 rad. s⁻¹ C. 5 rad. s⁻¹ D. 2.8 ms⁻¹
28	In case of planets the necessary acceleration is provided by	A. Gravitational force B. coulomb force C. frictional force D. centripetal force
29	Ten second after an electric fan is turned on, the fan rotates at 300rev/min. its average angular acceleration is	A. 30 rad/s² B. 3.14 rad/s² C. 30 rev/s² D. 500 rev/s²
30	The angular analogue of linear displacement is called	A. angular velocity B. angular displacement C. angular momentum D. moment of force

31	When a particle moves in a circle the angle between it linear velocity and the angular velocity is always	A. 0° B. 180° C. 90° D. none of them
32	The time period of revolution of geostationary satellite is	A. 1440 minutes B. 24 minutes C. 84 minutes D. none of these
33	A car of 1000kg traveling at 20m/sec rounds a curve of radius 100m. Find the necessary centripetal force	A. 4 x 10³ kg m/s² B. 3 x 10³ kg m/s² C. 5 x 10³kg m/s² D. 4.5 x 10³kg m/s²
34	A ball is thrown vertically upwards. Neglecting air resistance, which statement is correct?	A. The kinetic energy of the ball is greatest at the greatest height attained B. The potential energy of the ball increase uniformly with time during the ascent C. By the principle of conservation of momentum. The momentum of the ball is constant throughout its motion D. By the principle of conservation of energy, the total energy of the ball is constant throughout its motion
35	A man weighing 500 N carries a load of 10 kg to the top of a building in 4 minutes. The work done by the man is 6 × □□^{4} J. If he carries the same load in 8 minutes, the work done by the man will be:	A. 3 × 10⁴ J B. 6 × 10⁴J C. 9 × 10⁴J D. 12× 10⁴ J
36	A person holds a bucket of weight 60N. He walks 7 m along the horizontal path and then climbs up a vertical distance of 5 m. The work done by the man is:	A. 300 N-m B. 420 N-m C. 720 N-m D. none of these
37	A man M_1 of mass 80 kg runs up a staircase in 15s. Another man M_2 also of mass 80 kg runs up the same staircase in 20s. The ratio of the power developed by them will be	A. 1 B. 4/3 C. 16/9 D. none of these
38	An engine pumps up 100 kg of water through a height of 10m in 5s. Given that the efficiency of the engine is 60%, what is the power of the engine? (Take g = 10ms^{-2})	A. 33 kW B. 3.3kW C. 0.33kW D. 0.033kW
39	An engine pumps out 40 kg of water in one second. The water comes out vertically upwards with a velocity of 3ms-1 . What is the power of engine in kilowatt?	A. 1.2kW B. 120kW C. 12kW D. 1200kW
40	An elevator's motor produces 3000 W power. The speed With Which it can lift a 1000 kg load is:	A. 30.6ms⁻¹ B. 0.306ms⁻¹ C. 3.06ms⁻¹ D. 300.3ms⁻¹