MDCAT Physics Chapter 3 Rotational and circular motion Online Test

Sr	Questions	Answers Choice
1	A body of mass m tied to a string is moved in a vertical circle of radius r. the difference in tensions at the lowest point and the highest point is.	A. 2 mg B. 4 mg C. 6 □g D. 8 mg
2	A couple produces	A. linear motion B. rotational motion C. both (A) and (B) D. None
3	When a particle moves in a uniform circular motion. It has:	A. Radial velocity and radial acceleration B. Tangential velocity and radial acceleration C. Tangential velocity and tangential acceleration D. Radial velocity and tangential acceleration
4	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
5	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
6	On slightly disturbing a body which is an unstable equilibrium, its center of gravity	A. rises B. falls C. remains constant D. first rises then falls
7	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
8	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
9	The ratio of angular speeds of minute hand and hour hand of a watch is:	A. 1: 12 B. 6: 1 C. 12: 1 D. 1: 6
10	Geo stationary satellite remains	A. Stationary B. Both "A" & "B" C. Appear D. None of them
11	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/s^{2 } B. 3 x 10³ kg m/s² C. 5 x 10³kg m/s² D. 4.5 x 10³kg m/s²
12	What happens to the centripetal acceleration of a particle, when its speed is doubled and angular velocity is halved?	A. halved B. doubled C. remain unchanged D. becomes four times
13	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

14	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:	A. 2 B. 0.2 C. 8 D. 0.8
15	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
16	In uniform circular motion, the factor that remains constant is:	A. Linear velocity B. Acceleration C. Speed D. All of these
17	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
18	Two satellites are going around the earth at a height of 250 km and 450 km respectively. If angular speed for both is same, then centripetal acceleration will be.	A. more for first B. more for second C. same for both D. nothing can be decided
19	Torque is necessary for producing.	A. angular speed B. linear acceleration C. angular acceleration D. none of these
20	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
21	Angular displacement in rotational motion is expressed in	A. m B. m² C. Nms-1 D. Nm s
22	The angular analogue of linear displacement is called	A. angular velocity B. angular displacement C. angular momentum D. moment of force
23	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
24	The radius of orbit of a geostationary satellite depends upon:	A. Mass of satellite and its time period B. Mass of satellite and mass of earth C. Mass of earth, mass of satellite and time period of satellite D. Mass of earth and time period of earth
25	The work done to keep the satellite in the given orbit is.	A. Zero B. infinity C. unit D. can’t be decided
26	For a particle moving in uniform circular motion	A. Velocity is transverse and acceleration is radical B. Velocity is radial and acceleration is transverse C. Both velocity and acceleration are radial D. Both velocity and acceleration are transverse
27	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
28	SI unit of kinetic energy of rotation is	A. joule second B. joule C. joule second D. joule meter
29	Which statement about geostationary orbit is false?	A. A geostationary orbit must be directly above the equator B. All satellite in a geostationary orbit must have the same masses C. The period of geostationary orbit

		C. The period of geostationary orbit must be 24 hours D. There is only one possible radius for a geostationary
30	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
31	A particle revolves round a circular path with a constant speed. The accelerationof the particle is	A. A. A long the circumference of the circle B. Along the tangent C. Along the radius D. Zero
32	The geostationary satellite is:	A. Stationary B. Rotating very fastly C. Rotating with the period of earth D. Rotating very slowly
33	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 a C. more than its tangential acceleration D. less than its tangential acceleration
34	The kinetic energy of a body rotating with an angular speed □ depends on.	A. angular speed B. distribution of mass C. neither (A) nor (B) D. both (A) and (B)
35	A stone attached to one end of a string is revolved around a stick so that the string winds on the stick and gets shortened) What is conserved)	A. angular momentum B. kinetic energy C. linear momentum D. none of the above
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:	A. 6 rad/s B. 4 rad/s C. 2 rad/s D. 8 rad/s
37	In uniform circular motion, the factor that remains constant is	A. Linear velocity B. Centripetal force C. Acceleration D. speed
38	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
39	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
40	The time period of revolution of geostationary satellite is	A. 1440 minutes B. 24 minutes C. 84 minutes D. none of these
41	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
42	A body crosses the topmost point of a vertical circle with critical speed. Itscentripetal acceleration, when the string is horizontal will be	A. 4g B. 3g C. g D. 6g
43	If the radius of the circular path of particle going around the circle is doubled without changing its frequency of rotation, then centripetal force on it is.	A. doubled B. halved C. unchanged D. quadrupled
44	In case of planets the necessary acceleration is provided by	A. Gravitational force B. coulomb force C. frictional force D. centripetal force
45	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
46	The ratio of the SI unit to the C)G.S unit of torque is.	A. 10⁷ B. 10⁹ C. 10⁰ D. 10³
47	A body revolved around the sun 27 times faster then the earth what is the ratioof their radii	A. 1/27 B. 1/4 C. 1/9 D. 1/3
48	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
49	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
50	The time period of a geostationary satellite above the surface of the earth is.	A. 24 hours B. 12 hours C. 365 days D. none of these