MDCAT Physics Chapter 1 Force and motion Online Test

Sr	Questions	Answers Choice
1	The distance covered by a body in time 't' starting from rest is:	A. $1/2\ at^2$ B. vt C. at^2 D. at_2
2	A particle executing one dimensional motion, finally comes to rest, what will be the angle between acceleration and displacement during motion:	A. 0 B. π C. $\pi/2$ D. $\pi/4$
3	A particle executing one dimensional motion, finally comes to rest, what will be the angle between acceleration and displacement during motion:	A. 0 B. π C. $\pi/2$ D. $\pi/4$
4	A machine gun fires 'n' bullets per second and the mass of each bullet is m. If v is the speed of each bullet then the force exerted on the machine gun is:	A. mng B. mnv C. $mnvg$ D. mnv/g
5	Two projectiles 'A' and 'B' are thrown with same speed but at angle of 40 degree and 50 degree with the horizontal. The horizontal range of 'A' will be:	A. Equal to that of 'B' B. Greater than that of 'B' C. Less than that of 'B' D. 4/5times that of 'B'
6	In the absence of air resistance, a stone is thrown from P and follows a parabolic path in which the highest point reached is T. The vertical component of acceleration of stone is:	A. Zero at T B. Greatest at T C.) Greatest at P D. the same at P as at T
7	A ball takes 't' second to fall from a height h_1 and '2t' second to fall from a height h_2 then h1/h2 is:	A. 2 B. 4 C. 0.5 D. 0.25
8	If the range of a projectile is R, the potential energy will be maximum after the projectile has covered (from start) distance equal to:	A. $R/2$ B. $R/4$ C. R D. $R/9$
9	Vertical component of velocity of the projectile at any instant 't' from the ground is given by:	A. $v\sin\theta$ B. $v\sin\theta - gt$ C. $v\sin\theta - gt$ D. $v\sin\theta + gt$
10	Newton's third law concerns the forces of interaction between two bodies. Which of the following statement relating to the third law is not correct:	A. The two forces must be the same type B. The two forces must act on different bodies C. The two forces are always opposite in direction D. The two forces are equal and opposite so the bodies are in equilibrium
11	Two bodies are projected at angle θ and $(90 - \theta)$ to the horizontal with the same speed. The ratio of their times of flight is:	A. $\sin\theta : 1$ B. $\cos\theta : 1$ C. $\sin\theta : \cos\theta$ D. $\cos\theta : \sin\theta$
12	A stone is thrown upwards it returns to ground describing a parabolic path which of the following remains constant:	A. Speed of the ball B. Kinetic energy of the ball C. Vertical component of velocity D.) Horizontal component of velocity
13	The time of flight of a projectile is maximum when angle of projection is:	A. 30 Degree B. 45Degree C. 60Degree D. 90Degree
14	A body of mass m having an initial velocity v, makes head on elastic collision with a stationary body of mass m. After the collision, the body of mass m comes to rest and only the body having mass M moves. This will happen only when:	A. m>>M B. m<<M C.) m=M D. m=1M

15	In a one-dimensional elastic collision, the relative velocity of approach before collision is equal to:	A. Sum of the velocities of the bodies B. e times the relative velocity of separation after collision C. $1/e$ times the relative velocity of separation after collision D. relative velocity of separation after collision
16	What is the resultant force in the diagram shown?	A. Zero B. 6N to left C. 6N to right D. 11N to right
17	A rigid uniform bar of length 2.4 m is pivoted horizontally at its mid-point, weights are hung from two points of the bar as shown in diagram. To maintain horizontal equilibrium, a couple is applied to the bar: What is the torque and the direction of couple?	A. 40 N m clockwise B. 40 N m anti-clockwise C. 80 N m clockwise D. 80 N m anti-clockwise
18	Two 8 N forces act on each end of the beam of length 0.60m. Two forces are parallel and acting opposite to each other, the angle between the force and beam is 60o , what is the torque of the couple exerted on the beam:	A. 2.4 Nm B. 4.2 Nm C. 4.8 Nm D. 9.6 Nm
19	The rate of change of momentum of a body falling freely under gravity is equal to its	A. Impulse B. Kinetic energy C. Pover D. Weight
20	Two railway trucks of masses m and 3m move towards each other in opposite directions with speeds 2v and v respectively. These trucks collide and stick together. What is the speed of the trucks after the collision?	A. *v/4* B. *v/2* C. *v* D. *5v/4*
21	The centre of gravity of a triangular plate is at	A. On end of the plate B. The midpoint of any side of the plate C. The midpoint of any side of the plate D. The midpoint of any side of the plate
22	A body is in translational equilibrium if	A. $\sum P = 0$ B. $\sum L = 0$ C. $\sum F = 0$ D. $\sum \tau = 0$
23	As in linear motion force determines linear acceleration where as in circular motion torque determines its	A. Angular acceleration B. Linear acceleration C. Vibratory acceleration D. Tangential acceleration
24	The angular momentum of a body changes from 30 J-S to 50 J-S in 0.5 sec. The torque acting on it is	A. 40 N-m B. 100 N-m C. 50 N-m D. 150 N-m
25	Two astronauts in a satellite must have	A. Same masses B. Same real weights C. Same apparent weights D. None of these
26	A monkey is accelerating down a string whose breaking strength is two third of his weight. The minimumacceleration of the monkey should be	A. 1/3g B. g C. 2/3 g D. 0 m/s2
27	A man has weight 980 N in a stationary lift. What will be his weight if the lift starts moving up with anacceleration of 4.9 ms^{-2}	A. 980 N B. 1470 N C. 1980 N D. 1460 N
28	A boy is travelling from Lahore to Karachi with uniform velocity . Its	A. Speed changes B. Acceleration changes C. Direction of motion changes D. Displacement from origin changes
29	A rider uses Motorcycle safety helmet that extends the time of collision during accident hence decreasing the	A. Change of collisio B. Force acting C. Velocity D. Impulse
30	select Which one of the following is not performing projectile motion	A. A gas filled balloon B.) Bullet fired from gun C. A football kicked D. A baseball shot
31	Time rate of change of momentum is equal to	A. Force B. Impulse

#	Question	Options
31	. Time rate of change of momentum is equal to	C. Velocity D. Both A and C
32	The angle of projection, at which the range of projectile would become half of its maximum value.	A. 45Degree B. 30Degree C. 15Degree D. 60 Degree
33	Swimming is possible on account of	A. 1st law of motion B. 2nd law of motion C. 3rd law of motion D. Newton's law of Gravitation
34	If a body changes its momentum from 100 N s to 200 N s in 10 s then the unbalanceexternal force responsible to change the momentum is	A. 5 N B. 2.5 N C. 2n D. 10n
35	Speedometer of an automobile measures	A. Average velocity B. Instantaneous velocity C. Acceleration D. Instantaneous speed
36	Two bodies are projected at angles θ and $(90°-\theta)$ with the horizontal at the same speed.The ratio of their maximum heights is	A. 1 : 1 B. 1 : tan θ C. 1 : tan θ D. $\tan^2 : 1$
37	At the highest point on the trajectory of a projectile, its	A. Potential energy is minimum B. Kinetic energy is maximum C. Total energy is maximum D. Kinetic energy is minimum
38	If velocity time graph is a straight line parallel to time axis then body is	A. Moving with zero acceleration B. Moving with constant velocity C. Covering equal displacement in equal intervals of time D. All of these