MDCAT Physics Chapter 1 Force and motion Online Test

Sr	Questions	Answers Choice
1	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
2	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
3	What is the resultant force in the diagram shown?	A. Zero B. 6N to left C. 6N to right D. 11N to right
4	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
5	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
6	The time of flight of a projectile is maximum when angle of projection is:	A. 30 Degree B. 45Degree C. 60Degree D. 90Degree
7	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
8	Two bodies are projected at angle θ and $(\frac{\pi}{2} - \theta)$ 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. $\cos \theta : \sin\theta$
9	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
10	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. $v\sin\theta + gt$
11	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. $R/9$
12	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
13	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
14	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'
15	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
16	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. $\pi/4$
17	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. $\pi/4$
18	The distance covered by a body in time 't' starting from rest is:	A. $\frac{1}{2} \square^2$ B. vt C. $\square\square^2$ D. $\square\square_2$