INDIAN SCHOOL NIZWA - WORKSHEET

PHYSICS

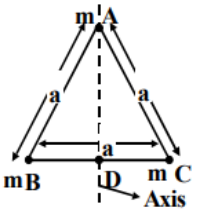
CH: 7 SYSTEM OF

PARTICLES AND RIGID

BODY

Name: _____ Date:_____ Class: XI Sec: _A__

	MCQs
1.	The motion of a rigid body fixed or pivoted in some way is A. Pure translational B. Pure rotational C. Combination of translational and rotational D. Rolling
2.	A particle performing uniform circular motion has angular momentum L. If the angular frequency doubled and its kinetic energy is halved, then the new angular momentum is A. L/2 B. L C. 4L D. L/4
3.	Moment of inertia depend on A. Mass of the body B. Position of the axis C. Distribution of particles D. All the above
4.	Which among the following is wrong? A. $\tau = I\alpha$ B. $I = L\omega$ C. $L = I\omega$ D. $I = MR^2$
5.	A dancer can spin faster when she folds her hands. This is due to A. Increase in energy and decrease in angular momentum B. Decrease in energy and increase in angular momentum C. Constant angular momentum and increase in KE

	D. Constant angular momentum and decrease in KE
1.	The moment of inertia of two rotating bodies are I_A and I_B ($I_A > I_B$) and their angular momenta are equal. Which one has greater kinetic energy?
2.	If angular momentum is conserved in a system whose moment of inertia is decreased, will its KE be conserved?
3.	Where does the centre of mass of a uniform triangular lamina lie?
4.	On what factors, does the position of centre of mass of a rigid body depend?
5.	Is it necessary that the centre of mass of a body should always lie inside the body?
6.	Where does the centre of mass of a two particle system lie, if one particle is more massive than the other?
7.	Handle to open the door is always provided at the free edge of a door. Why?
8.	Name the rotational analogue of force. On what factors does it depend?
9.	Why is it easier to open a tap with two fingers than with one finger?
10.	Under what condition is torque zero?
11.	Why a force is applied at right angles to the heavy door at the outer edge while closing or opening it?
12.	Why are we not able to rotate a wheel by pulling or pushing along its radius?
13.	If the angular momentum is conserved in a system whose moment of inertia is decreased, will its rotational kinetic energy be conserved?
12.	Find the torque of a force 7i – 3j -5k about the origin which acts on a particle whose position vector is i+j-k?
13.	An electron of mass 9×10^{-31} kg revolves in a circle of radius $0.53A^0$ around the nucleus of hydrogen with a velocity of 2.2×10^6m/s. Show that its angular momentum is equal to h/2π, where h is Planck's constant of value 6.6×10^{-34}js.
14.	Three mass points m_1, m_2 and m_3 are located at the vertices of an equilateral triangle of length a. What is the moment of inertia of the system about an axis along the altitude of the triangle passing through m_1? 
15.	A body, whose moment of inertia is $3kgm^2$, is at rest. It is rotated for 20s with a moment of force 6Nm. Find the angular displacement of the body. Also calculate the work done.
16.	The angular speed of a motor wheel is increased from 1200rpm to 3120 rpm in 16 seconds. (i) What is its angular acceleration, assuming the acceleration to be uniform? (ii) How many revolutions does the wheel make during this time?