

NAME:		ROLL NO:		TIME:	50: MIN
SUB:	Physics	Date:		CLASS:	1 st Year
SYLLABUS	Chp. 3 (Circular and Rotational Motion)	T. MARKS	30	OBT. M	

Q. 1 Choose the Correct Answer. Cutting, Erasing, Double Selection is Strictly Prohibited. (1x10=10)

- Angular momentum has the same unit as:**
 - Impulse $\times$ distance
 - Power $\times$ time
 - Linear momentum $\times$ time
 - Work $\times$ frequency
- The apparent weight of object of mass m when the lift is moving upward with acceleration equal to g is given as:**
 - Zero
 - mg
 - $\frac{1}{2} mg$
 - $2 mg$
- Time period of geostationary satellite is:**
 - 1 day
 - 365 days
 - 6 hours
 - 12 hours
- SI unit of angular momentum is:**
 - $\text{Kg m}^2 \text{s}^{-1}$
 - Js
 - Both (a) and (b)
 - None of these
- When an elevator is moving downward with an acceleration ' a ' the apparent weight of the body in the elevator will be:**
 - $T = W + ma$
 - $T = W - ma$
 - $T = W$
 - None of these
- The ratio of the momentum of inertia of disc and hoop is:**
 - $\frac{1}{4}$
 - $\frac{1}{2}$
 - $\frac{3}{4}$
 - $\frac{4}{4}$
- The ratio of velocity of disc to velocity of hoop is:**
 - $\frac{2}{\sqrt{3}}$
 - $\frac{4}{\sqrt{3}}$
 - $\frac{2}{3}$
 - $\frac{4}{3}$
- Height of geo stationary orbit of the satellite above the earth is:**
 - 300 Km
 - 250 Km
 - 400 Km
 - None of these
- The angle 2π rad is equal to:**
 - 0°
 - 180°
 - 90°
 - 360°
- The angular displacement for daily rotation of the earth is _____**
 - 0 rad
 - π rad
 - 2π rad
 - 4π rad

PART-I

Q. 2 Write Short Answers of the Following Questions (2x6=12)

- Show that orbital angular momentum $L_o = mvr$
- What is the angular momentum? Give its different types.
- Mass is a measure of inertia in linear motion. What is its analogue in rotational motion? Describe briefly
- Why is it harder for a car to take turn at higher speed than at lower speed?
- Why is the acceleration of a body moving uniformly in a circle, directed towards the center?
- What will be time period of a simple pendulum in an artificial satellite?



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PART-II

Write Answers of the Following Questions in Detail.

- Q. 3 (a) Define angular momentum? How can release it with moment of inertia? 4
- (b) A satellite is orbiting the Earth at an altitude of 200 km. Assuming the Earth's radius is 6400 km, calculate the orbital speed of the satellite. 4

Answer Key

1	A	2	D	3	A	4	C
5	B	6	B	7	D	8	D
9	D	10	C				