Step Academy official

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STUDENT NAME	
PAPER CODE	97349
TIME ALLOWED	60
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CLASS	New 1st Year (FSC/ICS)
SUBJECT	Physics
TOTAL MARKS	25
Paper Type	

Q1. Choose the correct answer. **5X1=5**

I The dimension of angular acceleration is:

(A) $[T^{-1}]$ **(B)** $[LT^{-2}]$ **(C)** $[T^{2}]$ **(D)** $[T^{3}]$

II Centripetal acceleration is also called:

(A) Tangential acceleration **(B)** Radial acceleration **(C)** Angular acceleration **(D)** Rotational acceleration

III Moment of inertia of solid sphere is:

(A) mr^2 **(B)** $\frac{1}{2}mr^2$ **(C)** $\frac{2}{5}mr^2$ **(D)** $\frac{1}{12}mr^2$

IV The ratio of moment of inertia of disc and hoop is:

(A) 1/2 **(B)** 1/4 **(C)** 3/4 **(D)** 1/3

V Moment of inertia of 100 kg sphere having radius 50 cm will be:

(A) 10 kg m^2 **(B)** 5 kg m^2 **(C)** 500 kg m^2 **(D)** 2.5 kg m^2

Q2. Write short answers of the following questions. **5X2=10**

I . Banked tracks are needed for turns on higway. why?

II . How does an astronaut feel weightlessness while orbiting from the Earth in a spaceship?

III . What happen if an object moves faster than orbital velocity?

IV . What is moment of inertia?

V . Can weightlessness be experienced on the Earth?

Q3. Write detailed answers of the following questions. **2X5=10**

1 . Show that orbital angular momentum is $L = I\omega$.

2 .
A bicycle wheel has an angular momentum of 10 kg m^2 s^{-1} and angular velocity of 2 rad s^{-1} Find the value of its moment of inertia.