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MTH622 - Vectors and Classical Mechanics (Quiz No.3) Quiz Start Time: 02:59 PM, 07 September 2022

Question # 1 of 5 (Start time: 02:59:21 PM, 07 September 2022) Total Marks: 1

Three particles of masses m , $2m$ and $3m$ are held in a rigid light framework at points $(0, 1, 1)$, $(1, 0, 1)$ and $(1, 1, 0)$, respectively. Find I_{xx}

Select the correct option

☐ 8m

☒ 7m

WORK.100%

Reload Math Equations

Click to Save Answer & Move to Next Question

2:59 PM 9/7/2022

The moment of inertia of a rigid body about a given axis is equal to the same about a parallel axis through the centroid plus the moment of inertia due to the total mass placed at the centroid.

Select the correct option

false



true



Click to Save Answer & Move to Next Question

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Quiz

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MTH622 - Vectors and Classical Mechanics (Quiz No.3)

Quiz Start Time: 02:59 PM, 07 September 2022

Question # 5 of 5 (Start time: 03:02:56 PM, 07 September 2022)

Total Marks: 1

The M.I. of a uniform elliptical lamina with semi major axes and semi minor axes respectively about respective axes (x, y, z-axis) using _____ axis theorem.

Select the correct option

☐

parallel

☒

perpendicular

WORK.100%

Reload Math Equations

Click to Save Answer & Move to Next Question

3:03 PM
9/7/2022

If the moment of inertia of the centroid

$$I_0$$

is 3 and moment of inertia of the system with respect to a parallel axis

$$I'$$

is 5 the the total moment of inertia will be _____.

Select the correct option



Reload Math Equations



8



2



15



3/2

Question # 2 of 10 (Start time: 02:49:35 PM, 24 July 2023)

Total Marks:

Moment of inertia of a hemisphere is _____ the moment of inertia of a full sphere.

Select the correct option



Reload Math Equations

double



half



Let 5kg be the mass and 0.1m be the radius of a solid sphere. Its moment of inertia about the diameter will be ____kgm².

Select the correct option



Reload Math Equations



0.10



0.01



0.02



0.05

Click to Save Answer & Move to Next Question

The moment of inertia matrix for a solid _____ of mass M and side a , rotating about a corner.

Select the correct option



Reload Math Equations

☐ sphere

☐ cone

☐ cylinder

☒ cube



Click to Save Answer & Move to Next Question

Three particles of masses m , $2m$ and $3m$ are held in a rigid light framework at points $(0, 1, 1)$, $(1, 0, 1)$ and $(1, 1, 0)$, respectively. Find I_{zz}

Find I_{zz} .

Select the correct option



Reload Math Equations

9m



8m



Click to Save Answer & Move to Next Question

If the total moment of inertia

I

is 10 and moment of inertia of the system with respect to a parallel axis

I'

is 5 then the moment of inertia of centroid

I_0

will be _____

Select the correct option



Reload Math Equations

50

5

2

15





Question # 8 of 10 (Start time: 02:52:53 PM, 24 July 2023)

Total Marks:

The mass of the circular disc of density ρ and radius r is

Select the correct option



Reload Math Equations

☐ $2\pi\rho r$

☒ $\pi\rho r^2$



Click to Save Answer & Move to Next Question

Three particles of masses m , $2m$ and $3m$ are held in a rigid light framework at points $(0, 1, 1)$, $(1, 0, 1)$ and $(1, 1, 0)$, respectively. Find I_{yy}

Find I_{yy}



Reload Math Equations

8m



7m

Click to Save Answer & Move to Next Question

Question # 9 of 10 (Start time: 02:54:10 PM, 24 July 2023)

Total Marks:

The mass of a cylindrical shell of density ρ , height h thickness dr and radius r is

Select the correct option

 Reload Math Equations

☒ $2\pi\rho drh$

☐ $\pi r^2\rho drh$

Click to Save Answer & Move to Next Question

The moment of inertia of a rigid body about a given axis is equal to the same about a parallel axis through the centroid plus the moment of inertia due to the total mass placed at the centroid.

Select the correct option

false



true



Question # 5 of 10 (Start time: 10:12:12 AM, 24 July 2023)

Total Marks: 1

For uniform solid sphere

Select the correct option



Reload Math Equations

☐ $I_{xx} + I_{yy} + I_{zz} = 0$

☒ $I_{xx} = I_{yy} = I_{zz}$ 

Question # 7 of 10 (Start time: 10:12:24 AM, 24 July 2023)

Total Marks: 1

The moment of inertia of a ring of mass 1kg and radius 0.9m about an axis passing through its center will be _____kgm².

Select the correct option



Reload Math Equations



0.18



1.8



0.81



0.45

In general when a body rotates about fixed point, the angular velocity and the angular momentum vector about fixed point are in the same direction.

Select the correct option



Reload Math Equations

False



True



The Moment of inertia of a hollow sphere having mass M and radius a is given by

Select the correct option



$$I = \frac{1}{2}Ma^2$$



$$I = Ma^2$$



$$I = \frac{2}{5}Ma^2$$



$$I = \frac{2}{3}Ma^2$$

The Moment of inertia of a solid sphere having mass M and radius a is given by

Select the correct option

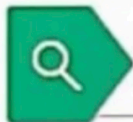
☐

$$I = Ma^2$$

☐

$$I = \frac{1}{2}Ma^2$$

☐



Module 136

$$I = \frac{2}{5}Ma^2$$

MTH622:Quiz#2

Question # 1 of 10 (Start time: 02:57:34 PM, 23 February 2021)

The Moment of inertia of a hollow cylindrical shell having mass M and radius a is given by

Select the correct option

☐	 Module 142, pg81	$I = Ma^2$
☐		$I = \frac{1}{2}Ma^2$
☐		$I = \frac{2}{5}Ma^2$
☐		$I = \frac{2}{3}Ma^2$