Mth622 QUIZ#3

Lec (28-34) Topic (119-145)

Date (2 August 2021 - 6 August 2021)

- **Mth622 Quiz NO3.pdf Skhan Academy (pg79)**
- **Mth622 current quiz 5August.pdf (pg31)**
- **Cam scanner 08-05-2021 (pg11)**
- **Cam scanner 08-05-2021 8.26.pdf (pg19)**

Question # 9 of 10 (Start time: 01:01:59 PM, 05 August 2021) Total Marks:

The torque acting on a particle is proportional to the time rate of change in its angular acceleration.

Select the correct option

- (•) false
- ( ) true

A

MTH622:Quiz 3

Question # 1 of 10 (Start time: 11:50:55 AM, 05 August 2021)

The product of inertia of a particle about x and y-axes is

Select the correct option

- ( ) $I_{xy} = m(x^2 + y^2)$
- ( ) $I_{xy} = -mxy$

B

Question # 8 of 10 (Start time: 11:48:12 AM, 05 August 2021) Total Marks: 1

In general, the directions of angular velocity and angular momentum are

Select the correct option

- distinct
- same

A

60

Question # 7 of 10 (Start time: 01:00:20 PM, 05 August 2021) Total Marks: 1

If P is any point on the ellipsoid of inertia, then the moment of inertia of a rigid body about any line $\overrightarrow{OP}$ is equals to the reciprocal of the square of the length of $|\overrightarrow{OP}|$.

Select the correct option

Reload Math Equations

- false
- true

B

MTH622:Quiz 3 Quiz Start Time: 11:50 AM, 05 August 202

Question # 8 of 10 (Start time: 11:55:29 AM, 05 August 2021) Total Marks

If an object is thrown into the air, different parts of the object can follow quite complicated paths, but the center-of-mass will follow .....

Select the correct option

- a straight line
- a parabola

In general, the directions of angular velocity and angular momentum are

Select the correct option

- distinct
- same

A

Question # 7 of 10 (Start time: 01:00:20 PM, 05 August 2021) Total Marks: 1

If P is any point on the ellipsoid of inertia, then the moment of inertia of a rigid body about any line $\overrightarrow{OP}$ is equals to the reciprocal of the square of the length of $|\overrightarrow{OP}|$.

Select the correct option

Reload Math Equations

- false
- true

B

MTH622:Quiz 3 Quiz Start Time: 11:50 AM, 05 August 20

Question # 8 of 10 (Start time: 11:55:29 AM, 05 August 2021) Total Marks

If an object is thrown into the air, different parts of the object can follow quite complicated paths, but the center-of-mass will follow .....

Select the correct option

- a straight line
- a parabola

B

TH622:Quiz 3 Quiz Start Time: 11:50 AM, 05 August 20

uestion # 6 of 10 (Start time: 11:54:19 AM, 05 August 2021) Total Mark

If a particle of mass 4 moving with velocity $4\hat{i}$ collides another particle of mass m with velocity $3\hat{i}$. If after collision the velocity of first particle is $5\hat{i}$ and that of second particle is $2\hat{i}$, find m

elect the correct option Reload Math Equatio

- 4 A
- 3

5 of 10 (Start time: 11:53:33 AM, 05 August 2021) Total

is the moment of inertia I of a hemisphere of mass M about an axis through its center given the corresponding radius of gyration is $K = \sqrt{\frac{2}{5}}a$

e correct option Reload Math Eq

- $I = \frac{2}{5}Ma^2$ A
- $I = \frac{5M}{2a^2}$

Question # 3 of 10 (Start time: 11:45:09 AM, 05 August 2021)

The moment of inertia of a particle about y-axis is

Select the correct option

The moment of inertia of a particle about y-axis is

Select the correct option

O	$I_{yy} = mxz$
O	$I_{yy} = m(x^2 + y^2)$

B

MTH622:Quiz 3 — Quiz Start Time: 11:43 AM, 05 August 2021

Question # 2 of 10 (Start time: 11:44:35 AM, 05 August 2021) — Total Marks: 1

Dynamics deals with the forces acting on any object and relationship fundamentally to the motion.

Select the correct option

O	true
O	false

A

MTH622:Quiz 3

Question # 5 of 10 (Start time: 11:46:23 AM, 05 August 2021)

Angular momentum can be defined as

Select the correct option

- $L = r \times v$
- $L = p \times \omega$
- $L = r \times \omega$
- $L = r \times p$

D

MTH622:Quiz 3

Question # 6 of 10 (Start time: 11:47:02 AM, 05 August 2021)

Kinetic energy T of a rigid body in a planar motion, is defined by

Question # 6 of 10 (Start time: 11:47:02 AM, 05 August 2021)

Kinetic energy T of a rigid body in a planar motion, is defined by

Select the correct option

O	$T = \frac{1}{2} I_0 \omega^2$
O	$T = \frac{1}{2} m v_c^2 + \frac{1}{2} I_c \omega^2$

B

MTH622:Quiz 3 — Quiz Start Time: 11:43 AM, 05 August 2021

Question # 10 of 10 (Start time: 11:49:33 AM, 05 August 2021) — Total Marks: 1

For an elastic body, the distance between two particles.....under the action of applied force

Select the correct option

O	remains constant
O	is changed

B

Question # 9 of 10 (Start time: 11:48:48 AM, 05 August 2021)

The radius of gyration K of the hemisphere of mass M and moment of inertia $I = \frac{2}{5}Ma^2$ about an axis through its center is

Select the correct option

- $K = \frac{1}{4}\sqrt{\frac{5}{2}}$
- $K = \sqrt{\frac{2}{5}}a$

B

MTH622:Quiz 3

Question # 5 of 10 (Start time: 12:58:58 PM, 05 August 2021)

If angular momentum $\Omega = 2\omega \sin \omega t$ then the torque τ is

Select the correct option

- $2\omega^2 \cos \omega t$ Ans

A

- $-2 \cos \omega t$

Mth622 for final mega file

Question # 4 of 10 (Start time: 12:57:36 PM, 05 August 2021) Total Marks: 1

Consider a right circular cone of density ρ, radius a and height h is composed of elementary circular discs of small thickness each parallel to the base of the cone. Choose the z-axis as the axis of symmetry and consider a typical disc of radius r and width δz them mass of the disc is

Select the correct option

Reload Math Equations

- $\delta m = \rho 2\pi r \delta z$
- $\delta m = \rho \pi r^2 \delta z$

B

MTH622:Quiz 3 Quiz

Question # 3 of 10 (Start time: 12:56:21 PM, 05 August 2021)

If a body rotates about some external fixed point it is called revolution

Select the correct option

- revolution
- spin

A

For inertia matrix, along principal axes

Select the correct option

- the diagonal elements are zero
- the off diagonal elements are zero

B

Question # 4 of 10 (Start time: 11:45:47 AM, 05 August 2021)

If the center of mass is at origin then the coordinate axes (xyz axes) and the principal axes of the rigid body are.....

Select the correct option

- coincident
- perpendicular

A

MTH622:Quiz 3

Quiz Start Time: 11:43 AM, 05 August 2021

Question # 1 of 10 (Start time: 11:43:47 AM, 05 August 2021)

Total Marks: 1

If a particle of mass 4 moving with velocity $4\hat{i}$ collides another particle of mass 5 with velocity $3\hat{i}$. Then what will be the velocity of first particle after collision if the velocity of second particle after collision is $2\hat{i}$.

Select the correct option

Reload Math Equations

- $\frac{15}{4}\hat{i}$
- $\frac{21}{4}\hat{i}$

B

Question # 7 of 10 (Start time: 08:44:03 PM, 04 August 2021)

The position vector of the center of mass of a system of particles is

Select the correct option

Question # 7 of 10 (Start time: 08:44:03 PM, 04 August 2021)

The position vector of the center of mass of a system of particles is

Select the correct option

- ○ $\vec{r}_c = \frac{\sum_i m_i \vec{r}_i}{\sum_i m_i}$
- ○ $\vec{r}_c = \frac{\sum_i m_i \vec{r}_i}{\sum_i \vec{r}_i}$

A

Question # 6 of 10 (Start time: 09:54:50 AM, 05 August 2021)

If a rigid body is rotating about a fixed point on ground then its kinetic energy T is defined by

Teacher's Reply

Other Student's Comments (0)

1 day ago

Dear Student,

Quiz 2 will be set from midule 116 to module 135.

Question # 6 of 10 (Start time: 09:54:50 AM, 05 August 2021)

If a rigid body is rotating about a fixed point on ground then its kinetic energy T is defined by

Select the correct option

- $T = \frac{1}{2} I_0 \omega^2$
- $T = \frac{1}{2} m v_c^2 + \frac{1}{2} I_c \omega^2$

Question # 5 of 10 (Start time: 09:54:13 AM, 05 August 2021)

If the axis of rotation passes through
the center of mass of the rigid body then it is called

Question # 5 of 10 (Start time: 09:54:13 AM, 05 August 2021)

If the axis of rotation passes through the center of mass of the rigid body then it is called

Select the correct option

- spin
- revolution

A

Question # 10 of 10 (Start time: 02:57:41 PM, 02 August

If an object explodes, the center of mass will