Unit 12 - Week 10

Assignment 10

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-11-25, 23:59 IST.

1) Compute the principal moments of inertia for a homogenous thin rod of length l of mass M . Neglect the thickness of the rod. Select the correct answer. ***3 points***

- $I_3 = 0, I_1 = I_2 = \frac{1}{3}Ml^2$
- $I_3 = 0, I_1 = I_2 = \frac{1}{4}Ml^2$
- $I_3 = 0, I_1 = I_2 = \frac{1}{8}Ml^2$
- $I_3 = 0, I_1 = I_2 = \frac{1}{12}Ml^2$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$I_3 = 0, I_1 = I_2 = \frac{1}{12}Ml^2$

2) Compute the principal moments of inertia for a homogenous sphere of radius R of mass M . Select the correct answer. ***3 points***

- $I_1 = I_2 = I_3 = \frac{2}{5}MR^2$
- $I_1 = I_2 = I_3 = \frac{3}{5}MR^2$
- $I_1 = I_2 = I_3 = \frac{4}{5}MR^2$
- $I_1 = I_2 = I_3 = \frac{1}{3}MR^2$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$I_1 = I_2 = I_3 = \frac{2}{5}MR^2$

3) Compute the principal moments of inertia for a homogenous circular cylinder of radius R and height h and has mass M . Take x_3 along the axis of the cylinder. Select the correct answer. ***4 points***

- $I_1 = I_2 = \frac{1}{4}M(R^2 + h^2), I_3 = \frac{1}{2}MR^2$
- $I_1 = I_2 = \frac{1}{4}M(R^2 + h^2/3), I_3 = \frac{1}{2}MR^2$
- $I_1 = I_2 = \frac{1}{4}M(R^2 + h^2), I_3 = MR^2$
- $I_1 = I_2 = \frac{1}{4}M(2R^2 + h^2), I_3 = \frac{1}{2}MR^2$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$I_1 = I_2 = \frac{1}{4}M(R^2 + h^2/3), I_3 = \frac{1}{2}MR^2$