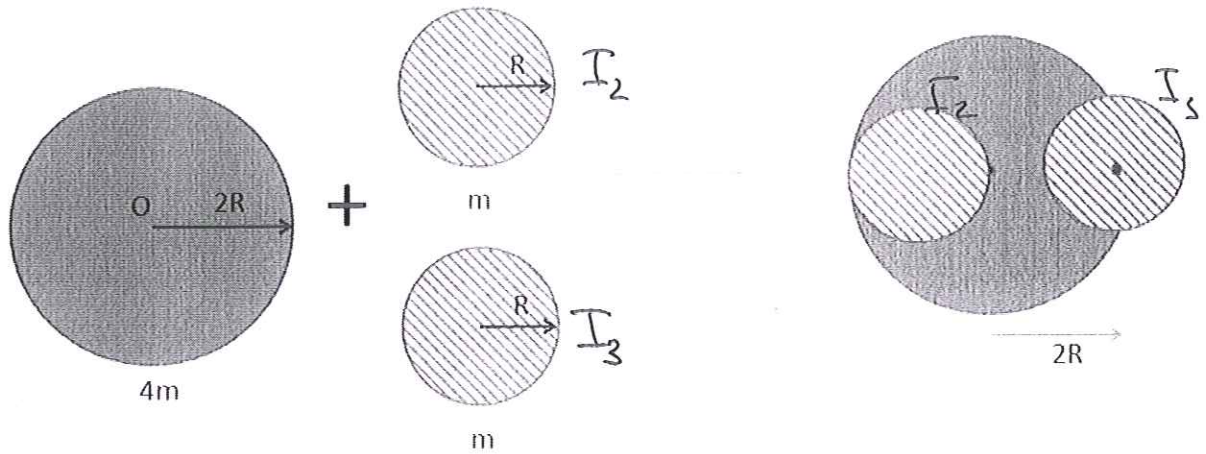


A system consists of three solid discs given in the figure. Calculate the total moment of inertia of the system about an axis through the center of the disc (an axis through point O in the figure) perpendicular to the plane.

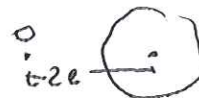
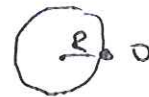


$$I_{sy} = I_{1o} + I_{2o} + I_{3o}$$

$$I_{1o} = \frac{1}{2} \cdot 4m \cdot (2R)^2$$

$$I_{2o} = \frac{1}{2} mR^2 + mR^2$$

$$I_{3o} = \frac{1}{2} mR^2 + m(2R)^2$$



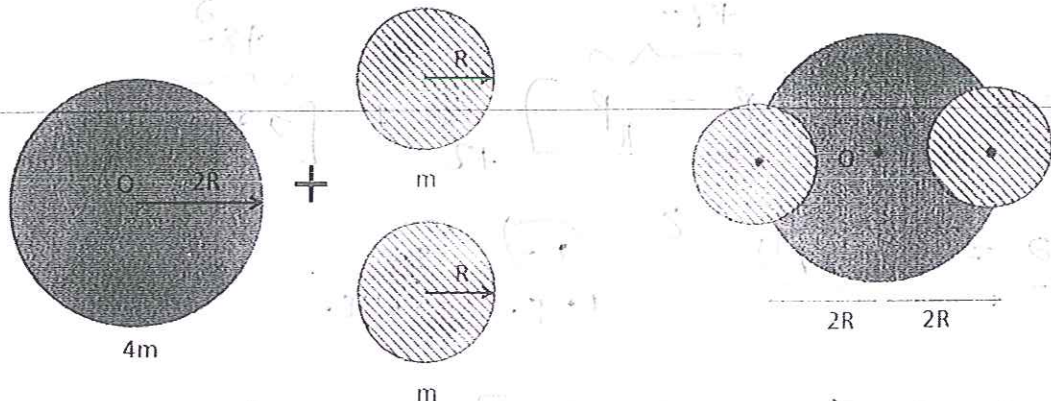
$$I_{sy} = 14mR^2 \quad \Leftarrow$$

Name:

Student ID:

Signature:

A system consists of three solid discs given in the figure. Calculate the total moment of inertia of the system about an axis through the center of the disc (an axis through point O in the figure) perpendicular to the plane.



$$I_{sy} = I_{10} + I_{20} + I_{30}$$

$$I_{10} = \frac{1}{2} 4m (2R)^2$$

$$I_{20} = \frac{1}{2} I_{cm} + m (2R)^2$$

$$= \frac{1}{2} m R^2 + m (2R)^2$$

$$I_{30} = \frac{1}{2} m R^2 + m (2R)^2$$

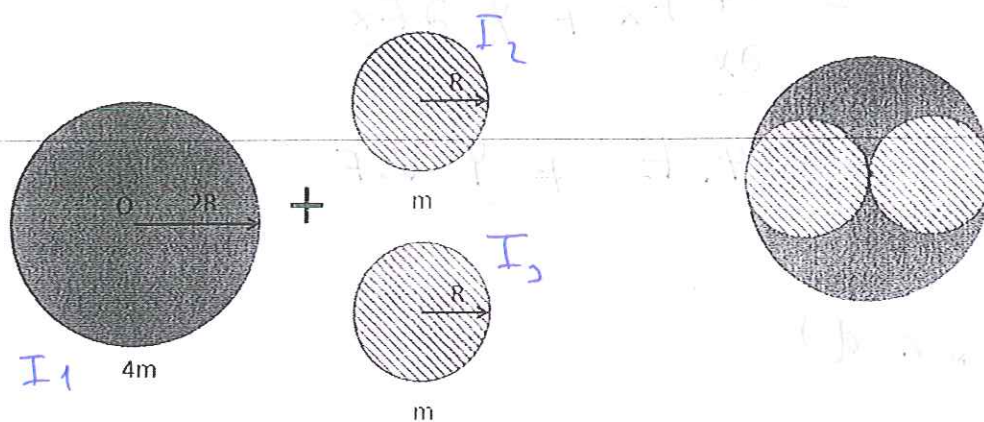
$$I_s = 17 m R^2$$

Name:

Student ID:

Signature:

A system consists of three solid discs given in the figure. Calculate the total moment of inertia of the system about an axis through the center of the disc (an axis through point O in the figure) perpendicular to the plane.



$$I_{sy} = I_{10} + I_{20} + I_{30}$$

$$I_{10} = I_{cm} = \frac{1}{2} (4m) \cdot (2R)^2$$

$$I_{20} = I_{cm} + mR^2$$

$$= \frac{1}{2} mR^2 + mR^2$$



$$I_{30} = \frac{1}{2} mR^2 + mR^2$$

$$I_{sy} = 11mR^2$$

College of Sciences

Section 1

Quiz 7

December 02, 2016

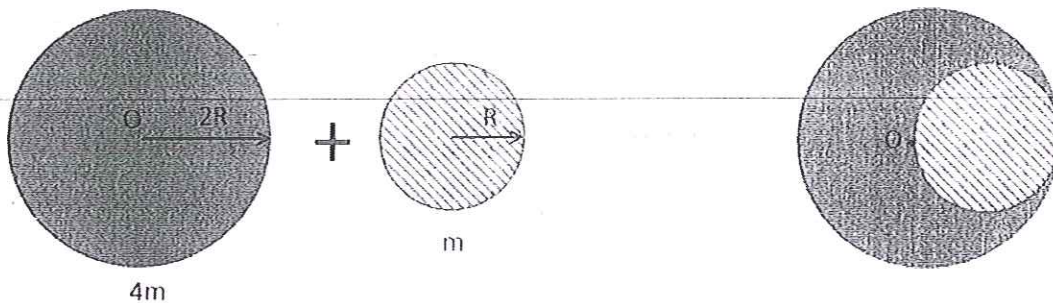
Closed book. Duration: 10 minutes

Name:

Student ID:

Signature:

A system consists of two solid discs given in the figure. Calculate the total moment of inertia of the system about an axis through the center of the disc (an axis through point O in the figure) perpendicular to the plane.



$$I_{sy} = I_{1O} + I_{2O}$$

$$I_{1O} = \frac{1}{2} 4m(2R)^2$$

$$\begin{aligned} I_{2O} &= I_{cm} + mR^2 \\ &= \frac{1}{2} mR^2 + mR^2 \end{aligned}$$

$$I_{sy} = \frac{19}{2} mR^2$$