Your solutions should be neat, correct and complete. Same instructions as Mission 1 apply here.

Recommended Homework from Textbook: problems:

Chapter 10 #'s 1, 3, 5, 11, 13, 15, 17, 25, 37

Recommended Homework from Recommended Textbook (Young & Freedman, 9th ed):
Chapter 9 (rotational motion) #'s 1, 11, 13, 15, 23, 27, 29, 31, 35, 37, 43, 57, 65, 73, 77, 79

Suggested Reading the following resources may be helpful:

(a.) Lectures 25, 26, 27 as posted on the course website,

(b.) Chapter 10 of the required text.

Problem 85: (2pts) Exercise 9-5 from Young and Freedman 9th edition.

Problem 86: (2pts) Exercise 9-9 from Young and Freedman 9th edition.

Problem 87: (2pts) Exercise 9-17 from Young and Freedman 9th edition.

Problem 88: (2pts) Exercise 9-25 from Young and Freedman 9th edition.

Problem 89: (2pts) Exercise 9-33 from Young and Freedman 9th edition.

Problem 90: (2pts) Exercise 9-59 from Young and Freedman 9th edition.

Problem 91: (2pts) Exercise 9-68 from Young and Freedman 9th edition.

Problem 92: (2pts) Let $\vec{A} = \langle 1, 3, 2\rangle$ and $\vec{B} = \langle -1, 0, 5\rangle$. Calculate $\vec{A} \times \vec{B}$. Also, find the area of the triangle which takes $\vec{A}$ and $\vec{B}$ as adjacent sides from a common vertex.

Problem 93: (2pts) Suppose a force $\vec{F} = (3.0\,N)\hat{\mathbf{x}} - (2.0\,N)\hat{\mathbf{z}}$ is applied at the point $(2, 3, 8)m$. Find the torque produced by $\vec{F}$ about the origin.

Problem 94: (2pts) Find the volume of the parallel-piped with sides $\vec{A} = \alpha\langle 1, 1, 2\rangle$ and $\vec{B} = \beta\langle 3, 0, -3\rangle$ and $\vec{C} = \gamma\langle 2, 3, 5\rangle$ given $\alpha, \beta, \gamma > 0$. Is $\vec{A}, \vec{B}, \vec{C}$ a right-handed triple of vectors ?

Problem 95: (2pts) A force $\vec{\mathbf{F}} = (3.0\,N)(3\hat{\mathbf{x}} - 2\hat{\mathbf{z}})$ is applied to a point mass $M = 2.00\,kg$ which has initial velocity $\vec{\mathbf{v}} = (30\,m/s)(\hat{\mathbf{y}} + \hat{\mathbf{z}})$ at the point $(1, 2, 3)m$. Find the torque on M and the angular momentum of M with respect to the origin.

Problem 96: (2pts) Calculate the moment of inertia for a napkin ring by the method of cylindrical shells. Assume the ring is manufactured from a sphere of wood with mass M and radius R drilled out with a cylindrical hole of radius A centered on a diameter of the sphere. Also, assume the axis of rotation is the diameter of the drill hole.