



College of Engineering & Technology

Department: Mechanical Engineering
Lecturer: Dr. Rola Afify
Course Code: ME362

Marks: 15
Time: 11:30 – 12:10
Date: 20/3/2016

15

Name:

R. N.:

Answer the following questions:

Question one (7 marks)

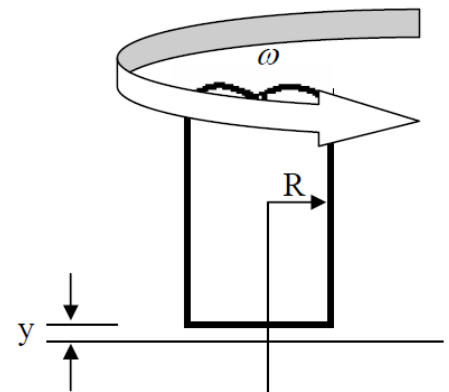
A) Define:

- Kinematic viscosity:

- Bulk modulus of elasticity:

B) Prove that for the shown case the torque

$$T = \frac{2\pi\mu\omega}{4y} R^4$$



Question two (8 marks)

A) A soap bubble has a radius of 4mm. Determine the pressure difference between the inside and outside the droplet. Surface tension of soap is $\sigma = 0.15 \text{ N/m}$.

B) A clean glass tube having a 2mm radius is placed in water ($\sigma = 7.34 \times 10^{-2} \text{ N/m}$), how high will the water rise in this tube due to capillary action?