



College of Engineering & Technology

Department: Mechanical Engineering

Marks: 20

Lecturer: Dr. Rola Afify

Time: 11:30 – 12:10

Course Code: ME361

Date: 1/7/2015

Name:

R. N.:

Answer the following questions:

Question one (5 marks)

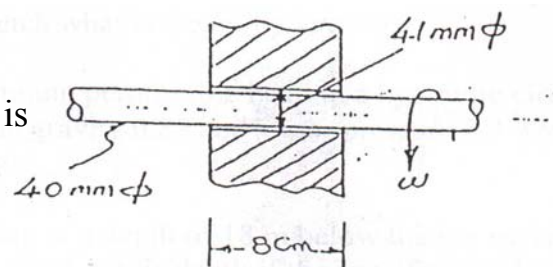
A) Discuss the relation between Viscosity and Temperature for a certain fluid.

B) Choose the correct answer:

An oil has a kinematic viscosity of $1.25 \times 10^{-4} \text{ m}^2/\text{s}$ and a specific gravity of 0.80. What is its dynamic (absolute) viscosity in $\text{kg}/(\text{m}\cdot\text{s})$?

(a) 0.08, (b) 0.10, (c) 0.125, (d) 1.0, (e) 1.25

C) The shaft turning inside a stationary journal as shown, with a rotating speed 20 rps the torque is 0.0036 N.m. Estimate the viscosity of oil.



Question two (5 marks)

A) Prove that the pressure changes in the vertical direction.

B) A tank is constructed of a series of cylinders having diameters of 0.30, 0.25, and 0.15 m as shown in figure. The tank contains oil (sp.gr. = 0.8), water, and glycerin (sp.gr. = 1.26). A mercury manometer is attached to bottom. Calculate the manometer reading, h .

