College of Engineering & Technology

Department: Mechanical Engineering Marks: 10
Lecturer: Dr. Rola Afify   Time: 3:30 – 4:10
Course Code: ME362   Date: 25/3/2015

Name: R. N.:

Answer the following questions:
Question one (5 marks)

A) If a certain liquid has a specific weight of 8600 N/m^3, what are the values of its density, specific volume, and specific gravity?

B) A flat plate 200 mm x 750 mm slides on oil (μ = 0.85 Ns/m^2) over a large plane surface. What force (F) is required to drag the plate at a velocity (v) of 1.2 m/s, if the thickness (t) of the separating oil film is 0.6 mm?
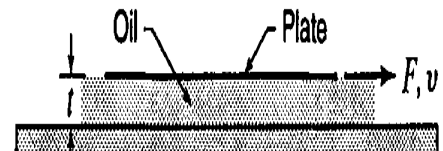
Question two (5 marks)

A) Explain using neat sketches Pascal law.

B) A U-tube mercury manometer is connected to a closed pressurized tank, as shown in figure. If the air pressure is 138 KPa, determine the differential reading, h. The specific weight of the air is negligible.

Pair = 138 KPa

air

Water

0.6 m

0.6 m

0.6 m

h

Mercury S.G.=13.6