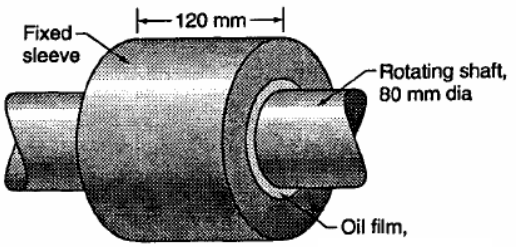
Alexandria University	**جامعة الأسكندرية**
Faculty of Engineering	**كلية الهندسة**
Electromechanical Department	**قسم هندسه الكهروميكانيكا**
July, 2013	**يوليو2013**
Fluid Mechanics 1 (EME206)	**ميكانيكا موائع**
1st year	**السنة الدراسية: الأولي**
Time Allowed: 1.5 hr	**مدة الأمتحان: ساعة ونصف**

Answer the following questions:

Question one (7 marks)

A) Define Density, Kinematic viscosity, Vapor pressure of liquids (with mentioning units).

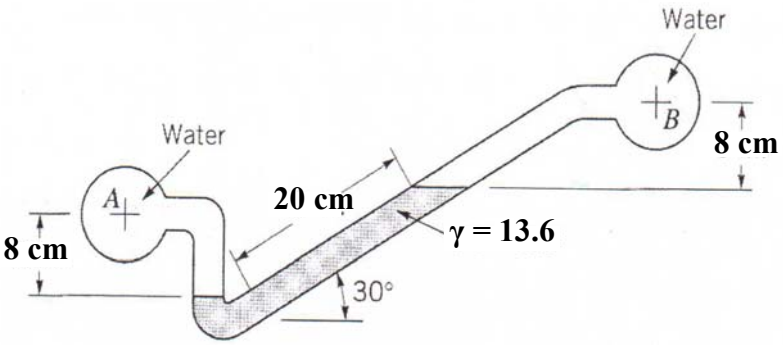
B) A journal bearing consists of an 80mm diameter shaft in an 80.4mm diameter and a 120mm long sleeve, the clearance space is assumed to be uniform and is filled with oil having an absolute viscosity of 0.11 N.s/m^2. Calculate the needed power to overcome viscosity when the shaft turns at 150 rpm.

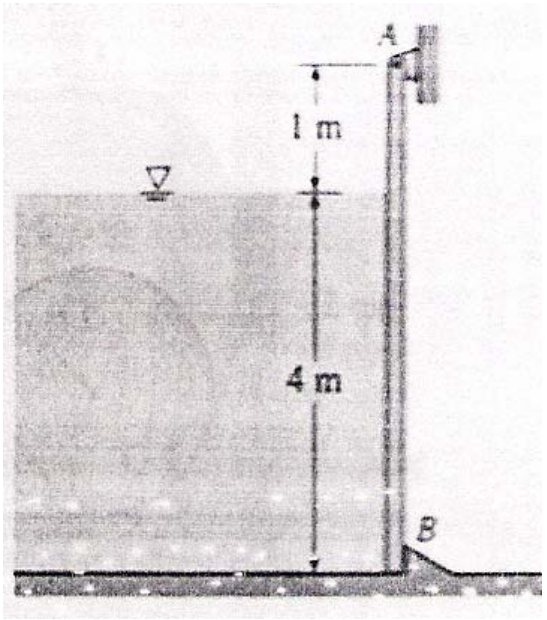


Question two (7 marks)

A) Differentiate between Piezometer and Inverted U-tube manometer.

B) For the inclined tube manometer shown in figure, the pressure in pipe A is 10 kPa. The fluid in both pipes A and B is water. The manometer fluid is mercury (γ = 13.6). What is the pressure in pipe B.





Question three (6 marks)

A 5-m-high. 5-m·wide· rectangular plate blocks the end of a 4-m-deep freshwater channel as shown in Figure. The plate is hinged about a horizontal axis along its upper edge through a point A and is restrained from opening by a fixed ridge at point B. Determine the force exerted on the plate by the ridge.

Good Luck 1/1

Dr. Rola Afify and committee