

## **College of Engineering & Technology**

Department: Mechanical Engineering<br/>Lecturer: Dr. Rola AfifyMarks: 10<br/>Time: 11:30 - 12:10<br/>Date: 25/3/2015Course Code: ME362Date: 25/3/2015

Name:

<u>R. N.:</u>

## 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 \*10<sup>-4</sup> m<sup>2</sup>/s and a specific gravity of 0.80. What is its dynamic (absolute) viscosity in kg/(m.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.

4.1 mm \$ 40 mm cb 11

**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 attached to bottom. manometer is Calculate the manometer reading, h.

