Enrollment No.												

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LDRP INSTITUTE OF TECHNOLOGY & RESEARCH, GANDHINAGAR.

B.E. 3rd Semester

MID SEMESTER EXAMINATION

Date/Day : 26/08/14 Tuesday | Branch : CIVIL

Subject Name: Fluid Mechanics (CV 303) | Max. Marks : 30

Time : 12:00 PM to 1.30 P.M

Instructions:
1) All questions are **compulsory**
2) Figures to the **right** indicate full marks.
3) Indicate **clearly**, the options you attempt along with its respective question number.

Q.1 (a) Differentiate kinematic viscosity and dynamic viscosity. Determine the viscosity of a fluid having kinematic viscosity 6 stokes and specific gravity 1.9 . [5]

(b) State Pascal's law and derive it. [5]

Q.2 (a) Find out the minimum size of glass tube that can be used to measure water level if the capillary rise in the tube is to be restricted to 2 mm. Consider surface tension of water in contact with air is as 0.0735 N/m. [5]

(b) Explain the conditions of equilibrium of a floating and submerged body. [5]

OR

(a) A simple manometer contains mercury to measure pressure of water flowing in a pipe. Mercury level in open tube is 60 mm higher than that on the left limb. If height of water in the left tube is 50 mm. Determine the pressure in terms of head of water. [5]

(b) Derive an expression for the total pressure and position of centre of pressure on a plane surface immersed vertically in a liquid. [5]

Q.3 (a) Calculate the pressure due to a column of 0.25 m of [5]
1) water 2) Oil of sp.gr 0.8 3) Mercury of sp.gr 13.6
Density of water is 1000 kg/m^3.

(b) Explain in details the term capillarity. [5]

OR

(a) A circular plate 2 m in diameter is having a 0.5 m diameter circular hole at centroid of circular plate. It is immersed vertically in water with uppermost end of vertical diameter lies at depth of 1 m below free surface of water. Estimate total pressure and centre of pressure due to one side of water. [5]

(b) Explain with sketch various types of pressure. [5]

**********All THE BEST**********