



Enrolment No. _____

HASMUKH GOSWAMI COLLEGE OF ENGINEERING, VAHELAL

MID SEMESTER EXAMINATION, SEPTEMBER-2016

Subject Code: 2130602

Date: 27-9-2016

Subject Name: Fluid Mechanics

Sem: 3RD

Time: 10:00 TO 10:50

Total Marks: 20

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

QUE.1 (A) Short questions: 3

If specific gravity of oil is 0.9, find its density.
If weight density of liquid is 9.0 kN/m^3 , find its specific gravity.
State Newton's law of viscosity.

(B) Calculate capillary rise in a glass tube of 3.0 mm diameter when immersed vertically in 3
(a) Water and (b) mercury.

QUE.2 (A) Explain with neat sketch types of fluid. 3

(B) Differentiate between simple manometer and differential manometer. 4
Differentiate between solid and fluid.

OR

(B) State and Derive the expression for Pascal's law. 4

QUE.3 (A) A u – tube differential manometer connects two points 'A' and 'B'. Pipe 'A' contains liquid 3
having specific gravity 1.6 under a pressure of 120 kPa. The pipe 'B' contains oil of specific gravity 0.8 under a pressure of 200 kPa. The pipe 'A' lies 2.5 m above B. find the difference of pressure measured by mercury filled in u- tube. The level of mercury in the left limb is at the level of pipe B.

(B) A rectangular plain surface is 2 m wide and 4 m deep. It lies in vertical plane in water. 4
Determine the total pressure and centre of pressure on the plane surface when its upper edge is horizontal and (i) coincides with water surface and (ii) 3 m below the free surface.

OR

(A) An isosceles triangle of base 3 m and altitude 6 m is immersed vertically in water such that 3
it axis of symmetry is horizontal and parallel to free surface of liquid. If the head of water on the axis is 7 m, calculate total pressure and centre of pressure.

(B) Derive the expression for total pressure and centre of pressure on a vertically immersed 4
surface with neat sketch.

***** ALL THE BEST *****