

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
 TEST -1 EXAMINATION- Oct 2017
 B.Tech III Semester

COURSE CODE: 10B11CE312

MAX. MARKS:15

COURSE NAME: Fluid Mechanics

COURSE CREDITS: 4

MAX. TIME: One Hr

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Assume suitable data if required

Q1. Answer the following in brief:

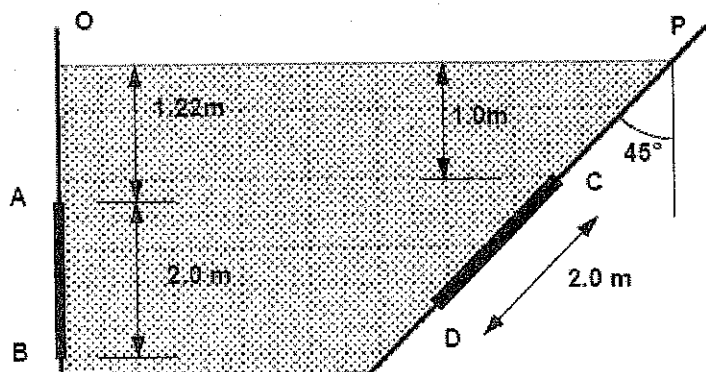
[5]

- What is the absolute pressure in the sea at a depth of 10m? Assume the density of seawater is constant at 1025 kg/m^3 and that atmospheric pressure is 101325 Pa.
- How viscosity of a liquid varies with temperature? Explain the phenomenon.
- Differentiate between simple manometer and differential manometer.
- Find the surface tension in a soap bubble of 40 mm diameter when the inside pressure is 2.5 N/m^2 above the atmospheric pressure.
- Define the Pascal Law.

Q2. A rectangular plate of size 25 cm by 50 cm and weighing 25 kg (f) slides down a 30° inclined surface at a uniform velocity of 2m/sec. If the uniform 2 mm gap between the plate and the inclined surface is filled with oil; determine the viscosity of the oil. [2]

Q3. A simple manometer is used to measure the pressure of oil (sp. Gr. =0.9) flowing through a pipe. Its right limb is open to atmosphere and left limb is connected to the pipe. The centre of pipe is 9 cm below the level of mercury in the right limb. If the difference of mercury level in the two limb is 15 cm, find out the pressure of the oil in the pipe line. [3]

Q4. Determine the resultant force due to water acting on the 1m by 2 m rectangular area AB and on the 1.25m (base) by 2.0 m (height) triangular area CD shown in the diagram. The apex of the triangle is at C. [5]



CE-6, BT