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Submitted to Sir Engr Wakeel

Subject Fluide mechanics1

Semester 4th

Section B

Date 22-08-020

Q:-No:-01

Part:a) Define fluid mechanics and its branches?

Ans: Fluid mechanics:

It is the Branch of Physics concerned with the Mechanics of fluid (Liquid, guage and Plasma) and the force on them.

It can divided into two branches

1) Fluid statics

2) Fluid dynamics

1) Fluid statics:

It is branch of fluid mechanics that studed Fluid at rest it embraces the study of the condition under which fluid are at rest in stable equilibrium.

2) Fluid dynamics:

It is a subdisipline

of fluid mechanics that deals with fluid flow. The science of liquids and gases in motion.

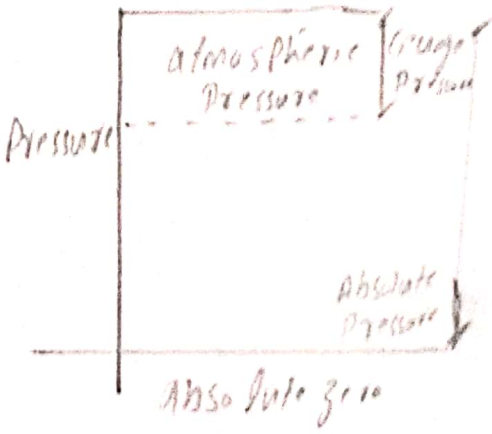
## QNo.: 1

**Part: b: Define an absolute and gauge Pressure.**

**Ans:** If Pressure is measured relative to absolute Zero it is called absolute Pressure.

When it is measured relative to atmospheric Pressure as base it is called guage Pressure.

$$P_{abs} = P_{atm} + P_{guage}$$



## Q:- NO:- 02.

**Given data:**

Height of open tank = 7883mm = 7.883m

Area = 0.2 m²

Specific weight = 9810 N/m³

**Required data:**

1) Pressure at surface of water
2) At centre
3) At bottom of tank.

**Sol:**

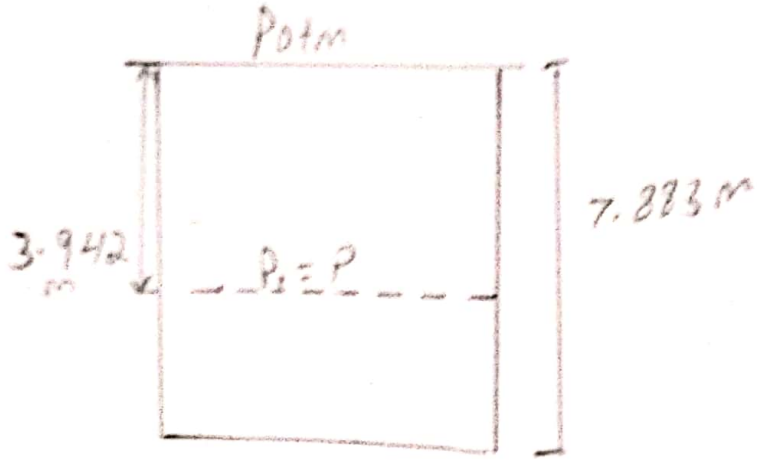
**1: Pressure at surface of water**

$\therefore P_a = \gamma h_m$

$= 9810 \times 7.883$

$$\boxed{P_a = 77332.23 \ N/m^2}$$

2:




$P_1 = P_{atm} + \rho g h$

$= 77332.23 + (998)(9.8)(7.883)$

$\therefore \rho = \frac{\delta}{g}$

$= \frac{9810}{9.8}$

$= 998 \text{ kg/m}$

$$\boxed{P_1 = 154431.1232 \text{ N/m}^2}$$

iii: At bottom of tank

$\therefore P_2 = P_1 + \rho g h$

$= 154431.1232 + (998)(9.8)(7.883)$

$$\boxed{P_2 = 231530.0164 \text{ N/m}^2}$$