NAME :> QAISER SIDDIQUE

ID :> "7863"

SECTION :> "B"

SUBJECT :> FLUID MECHANICS

Smester :- "SUMMER"

Submitted to :-

Engr. WAHID KHAN.

QUESTION : 1

PART : A

Define fluid mechanics and its branches ?

ANSWER :-

FLUID mechanics :- is the branch of physics concernt with machanics of Fluids (liquids, gas & plasma) and the forces on them it has applications in a wide range of disciplines, including mechanical civil, chemical and boimedical engineering, geography oceanography, meterology astrophysics and biology.

* Fluid mechanics is divided into two types.
* Fluid Statics.
* fluid dynamics.

FLUID STATICS

or hydrostatics is the branch of Fluid machanics that studies fluids at rest. It embraces the study of conditions under which fluid are at rest in stable equilibrium. and contrasted with fluid dynamic. the study of fluids in motion. Hydrostatics offers physical explanation

For many phenomena of everdy life such away atmospheric pressure change with altitude, why wood and oil ~~float~~ float on water and why surface of the water is always level whatever the shape of its conteinar, hydrostatis is the fundamental to hydraulic the engineering of equipment for storing transporting and using fluid. it is also relevant to some aspect of geophysics and astrophysics.

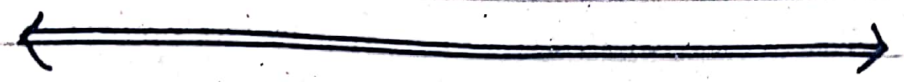
FLUID DYNAMICS

is a subdiscipline of Fluid machanics that deals with Fluid flow the sconce of liquids and gasses in motion.

Fluid dynamics offers a systematic structure which underlies these practical disciplines that embraces empirical and semi empirical laws derived from flow measurement and used to slove practical problems. the solution to a fluid dynamics problem typically involves calculating various properties of the fluid. such as velocity prossure, density and temproture as functions of space and time.

Fluid dynamic has wide range

applications - including calculating Force and movements on aircrafts determining the mass flow rate of petroleum through pipelines.

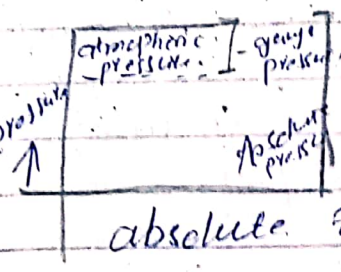


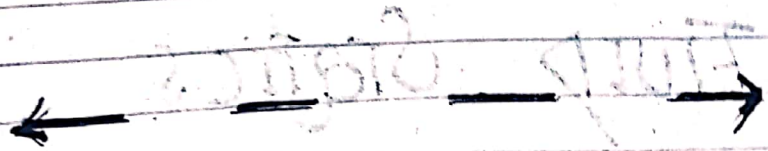
PART : "B"

QUESTION :-
Define an absolute and guage pressure ?

ABSOLUTE AND GUAGE :-
If the pressure is measured relative to the absolute zero, it is called absolute pressure.
When it is measured relative to atmospheric pressure as base it is called guage pressure if pressure is below atmospheric it is vaccum

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





Q NO.2

NUMERICAL :-

An open tank of height equal to your Student ID No in mm and cross section area is $0.2\ m^2$. it is full of water find pressure at surface of water At ce meter . & bottom of the tank Specific water is .

Solution :=>

γ = Specific Weight

$\gamma = 9810\ N/m^3$

$h = 7863 = 7.863\ m$

Required :=>

Find pressure at

Surface of water . . =?

At centre of tank = ?

At Base of tank = ?

Solution :=>

① ⇒ Pressure at Surface of water.

$p = \gamma h$

$= \gamma_1 h_1$

as on Surface of water height is zero.

$= 9810 \times 0 = 0 \text{ N/m}^2$.

(2) At Centre

$P_c = \gamma h$ at centre $= h/2 = h$

$= \gamma h / 2$

$= 9810 \times \frac{7.863}{2}$

$= 38,568.015 \text{ N/m}^2$

(3) ⇒ At Base of tank.

$P_B = \gamma h$ $\quad \therefore h = 7.863$.

$= 9810 \times 7.863$.

$= 77,136.03 \text{ N/m}^2$.