Stream flow Measurement:-

The Science and practise of Water measurement is called hydrometry.

STAGE:-

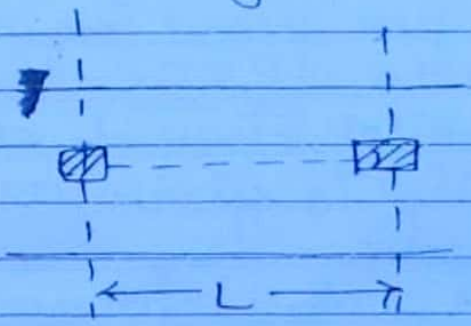
This is defined as the Water Surface Elevation measured above datum. datum can be mean Sea level or any other fixed level.

The process of measurement of stage is called gauging.

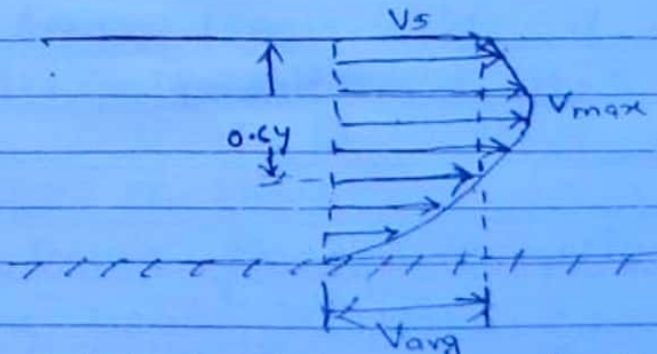
In order to find the discharge of Stream velocity is required which can be measured using the following devices.

1 **Float:-**

This is generally used to measure the approximate velocity of river surface. This is basically a floating device which is passed with Water along the flow.



$$V = \frac{L}{t}$$



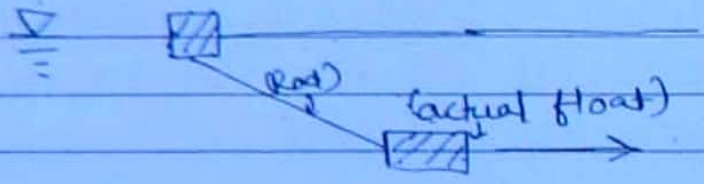
Vel. profile for given channel flow

→ The velocity at a d

The Avg. Velocity can also be calculated

$$V_{avg} = \frac{V_{0.2y} + V_{0.8y}}{2}$$

To over come the deficiency of float Canister float is introduce.



Current meter :→

This Consist of rotating Element which rotates due to Rxn of Stream and the No. of revolution per second are counted. (RPS)

If V is the velocity of river of stream at any depth then velocity is given as

$$V = a N_s + b$$

N_s - No. of revolution per second
a, b - Characteristic Constants
It is also called Characteristic Eqn of Current meter.

Their are basically 2 types of current meter

1 Vertical Axis Current meter :-
This has a vertical axis on which a rotating disk is mounted. It's major disadvantage is that it cannot be use in situations where there is an appreciable Inclined load.

2 Horizontal Axis Current meter :
These are fairly rugged and are not affected by Inclined flow upto 15°

Sounding Weight :-
These are Standard Weight attached to the Current meter in order to keep the Current meter at a fixed location. In order to reduce drag force these are Streamline.
The minimum weight required depends upon velocity and depth of flow and may be given by

$$W = 50 \bar{V} y$$

where,
$\bar{V}$ = Avg. velocity in m/sec
y = Avg. depth in m.
W = Weight in Newton.

Determination of discharge :-
There are basically two set of method :-

1) Direct method :-
i) Area Velocity Method
ii) Dilution method
iii) Ultrasonic method
iv) Moving boat method
v) Electro magnetic method