**Practical No. 03**

**Object:** To measure height of equivalent liquid column.(piezometer)

**APPARATUS:** Hydraulic Bench

**THEORY:**

**Flow Rate:** It is defined as volume of water passing through a given area (cross section) per unit time in other words :

Flow rate = $\frac{final level \left(liters\right)-starting level (liters)}{Time}$

**The Hydraulic Bench**

It provides facilities for performing a number of hydraulic experiments. A small centrifugal pump drawing water from sump which lies blow the bench delivers to experimental apparatus placed on top bench. The flow rate is controlled by valve in supply lin and measured before return to dump from recirculation. Using weight –time method the discharge is measured by timing the filling of a tank that is counter weighted.

**Procedure:**

* Turn on the pump by pressing red button.
* Open the valve slowly to start the flow does not turn it on full blast.
* Adjust the valve to obtain the desired flow rate by flow-meter display
* Observe the display for every 10seconds.
* Once the digital readout is constant approx., without changing the flow rate, quickly pull the hose out of the tub and fill the bucket to specified line while timing this procedure. Be ready to shut off the flow as soon as the bucket is filled to the specified line Try not to get wet.
* Repeat above two steps 2 or more times for each of 4 different flow rates ranging from 0.1-0.3L/s

**Observation:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S.no | Starting volume level (liters) | Final volume level (liters) | Difference in volume  |  Time (Seconds) | Flow (liters) |
| 1. | 0 | 8.5 | 8.5 | 10 | 0.85 |
| 2. | 8.5 | 19 | 10.5 | 10 | 1.05 |
| 3. | 19 | 30 | 11 | 10 | 1.10 |
| 4. | 30 | 40 | 10 | 10 | 1.00 |
| 5. | 40 | 49 | 9 | 10 | 0.90 |