Practical No.2

OBJECT: To demonstrate on simple manometer.

APPARATUS:

* Vacuum or positive pressure creator
* Simple manometer
* Mercury

THEORY:

A simple all glass manometer, which can be used for measuring the pressures from 0.1mm to 0.001mm. has been described. The manometer consists of a thermometer enclosed in atube. The pressure measurement isdone by measuring the time required to cool the thermometer form agiven temperature to the other under a given condigtion. Using a thermometer of long mercury bulb and limitin the operating temperature tange so narrow that thae Newton’s law of cooling hols.

Let, Z-Z be the datm line.

Let,

$h\_{1=height of liquid in left limb}$ $h\_{2=height of liquid in right limb}$ $h\_{=pressure in the pipe}$ $S\_{1=specific gravity of light liquid}$ $S\_{1=specific gravity of heavy liquidb}$

Pressure above the datum line in left limb of manometer = $s\_{1}h\_{1 +}$*h*

Similarly in right limb………………………………………………………..= $s\_{2}h\_{2 }$

Therefore: $s\_{1}h\_{1 +}$ h = $s\_{2}h\_{2 }$ $s\_{1}h\_{1 }$ ⇒ h = $s\_{2}h\_{2 }$ - $s\_{1}h\_{1 }$

Calculation:

$h\_{1=50mm}$ $h\_{2=60mm}$

$S\_{1=specific gravity of water=1}$ $S\_{1=specific gravity of Mercury=13.6}$

h = $s\_{2}h\_{2 }$ - $s\_{1}h\_{1 }$

h = (60×13.6) – (50×1) = 766mm

h= 0.766m