Date : 2021/02/11

Experiment No.: 5 Set : .....

Lab Manual and Records

Reg No: 20BDS0405

OF THE EXPERIMENT: QUALITY CHECK FOR SOFT DRINKS

Apparatus Required:

- Travelling Microscope
- Transparent liquid (water)
- Reading lens
- Glass Beaker
- Pin
- Saw dust

SLD:

To determine the refractive index of the given transparent liquid using travelling microscope.

To determine the refractive index of impure liquid.

Formula:

The refractive index of liquid

$$\mu = \frac{\text{Real depth of the liquid}}{\text{Apparent depth of the liquid}} = \frac{(C-A)}{(C-B)} \text{ (No Units).}$$

where,

A is the microscopic reading when tip of the pin is focused directly.

B is the microscopic reading when tip of the pin is focused through liquid.

C is the microscopic reading when saw dust sprinkled on surface of liquid is focused

Result:

Refractive index of the given liquid (water) is found tobe 1.4438 (Units).

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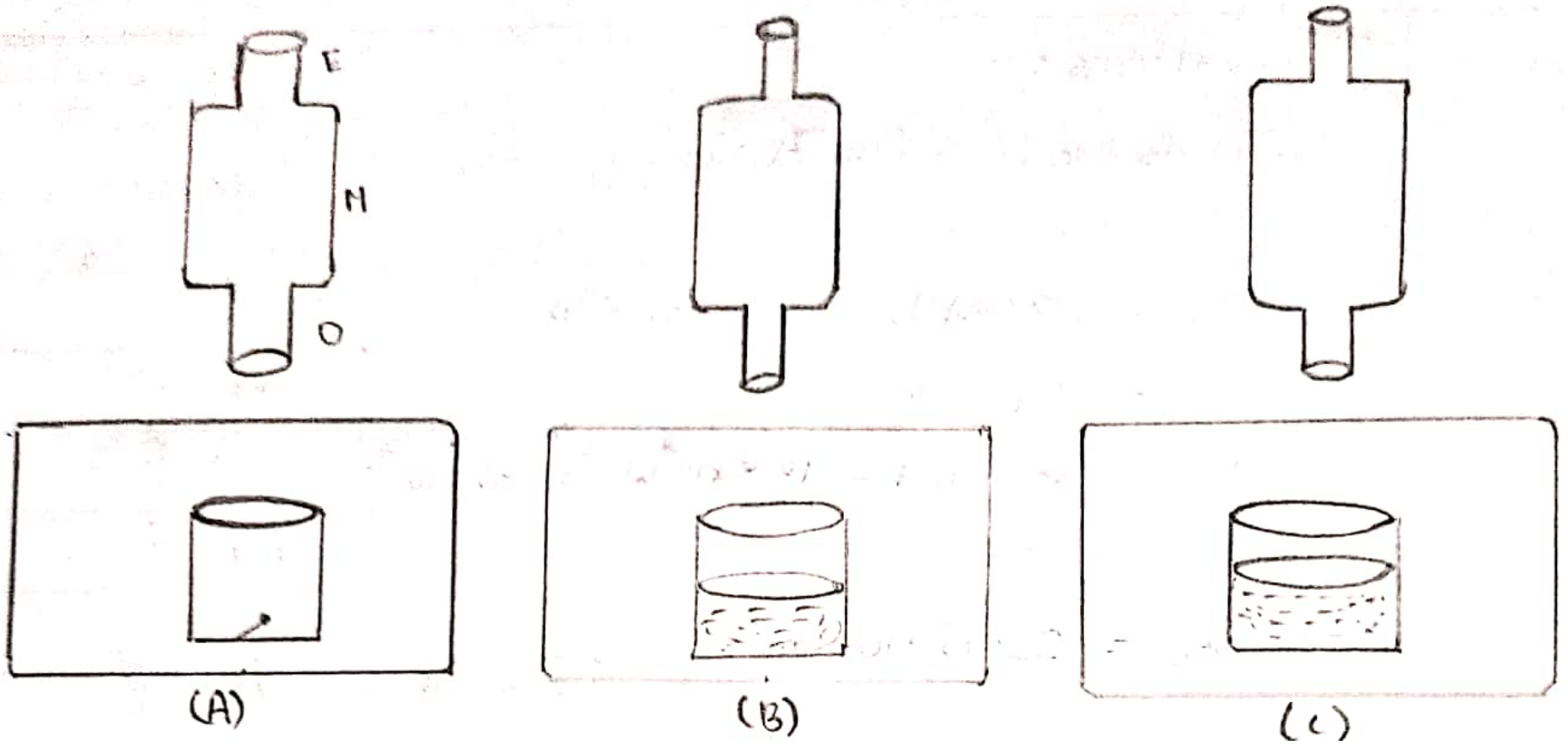

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Table 1: Least Count of Travelling Microscope = 0.001cm

Volume of water in the Beaker	Clear image of the tip of pin (Reading A)			Clear image of tip of pin seen through the liquid (Reading B)			Clear image of saw dust scattered on the surface of liquid (Reading C).			C-A (cm)	C-B (cm)	μ
	MSR (cm)	VSC	OR (cm)	MSR (cm)	VSC	OR (cm)	MSR (cm)	VSC	OR (cm)			
40ml	5.25	36	5.286	5.30	25	5.325	5.9	9	5.909	0.623	0.584	1.0668
60ml	5.25	36	5.286	6.15	7	6.157	7.2	18	7.218	1.932	1.061	1.8209
VSR = VSC x LC ; Observed Reading = MSR + VSR											Mean	1.4438

For 40ml water, For Reading A, OR = MSR + VSR = 5.25 + 36 x 0.001 = 5.286 cm

For Reading B, OR = MSR + VSC x LC = 5.3 + 25 x 0.001 = 5.325 cm

For Reading C, OR = MSR + VSC x LC = 5.9 + 9 x 0.001 = 5.909 cm

For 60ml water, For Reading A, OR = MSR + VSC x LC = 5.25 + 36 x 0.001 = 5.286 cm

For Reading B, OR = MSR + VSC x LC = 6.15 + 7 x 0.001 = 6.157 cm

For Reading C, OR = MSR + VSC x LC = 7.2 + 18 x 0.001 = 7.218 cm

Now, Refractive Index for 40ml sample = 1.0668

for 60ml sample = 1.8209 Mean Value = $\frac{1.0668 + 1.8209}{2}$ = 1.4438