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Quality Check for Soft Drinks

Apparatus Required

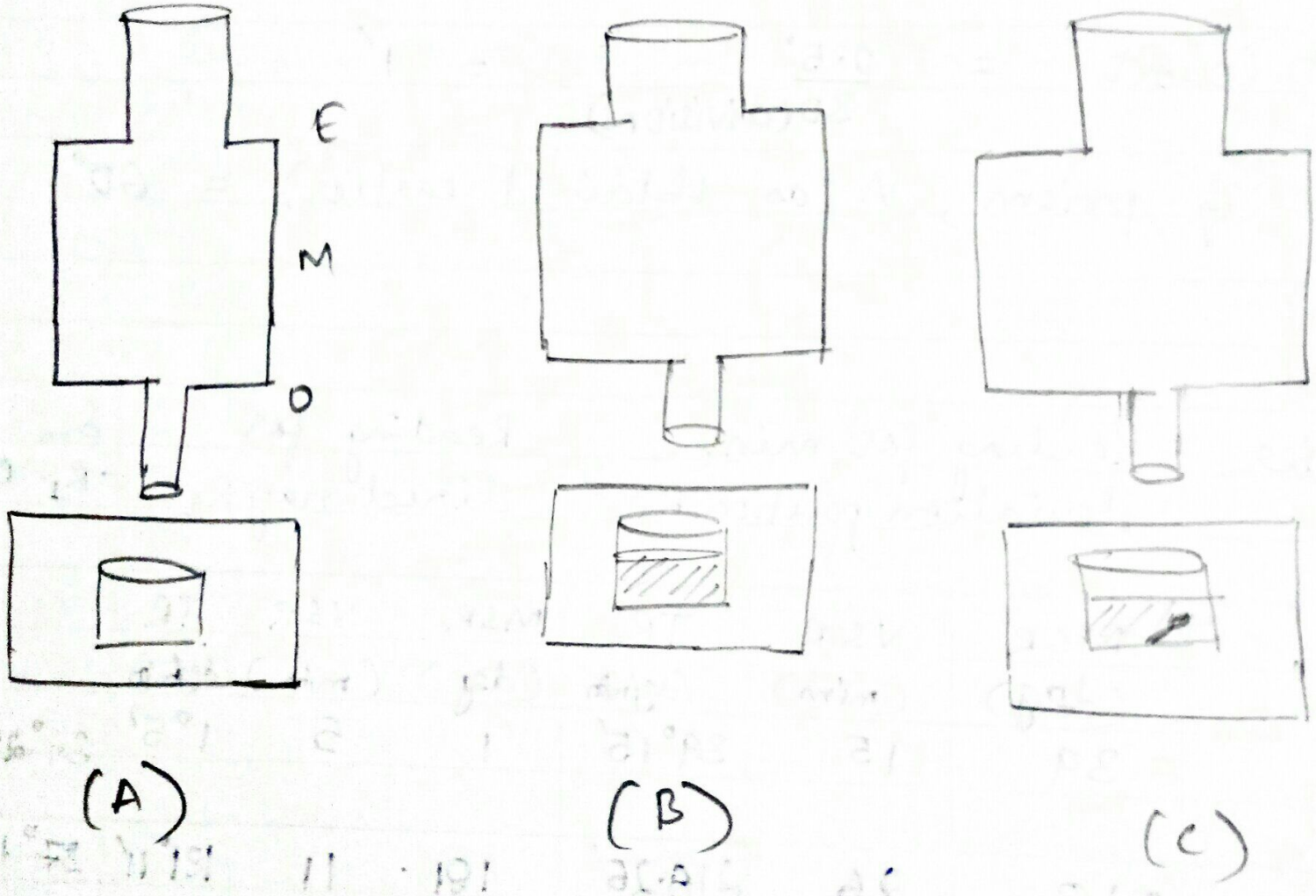
- Travelling microscope
- Transparent liquid
- Reading lens
- Glass Beaker
- Pin
- Saw dust

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

Formula:

$$\mu = \frac{\text{Real depth}}{\text{Apparent depth}} = \frac{C-A}{C-B}$$

A: tip of the pin focused directly
B: tip focused through liquid
C: saw dust sprinkled on surface of liquid.



(A) (B) (C)

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7.10.19

Quality Check of Water.

Observations. (17.10.19).

Least Count = 0.001 cm = 10^{-3} cm

Vol. of water in beaker (ml)	A MSR (cm)	A VSR ($cm \times 10^{-3}$)	A OR (cm)	B MSR (cm)	B VSR ($cm \times 10^{-3}$)	B OR (cm)	C MSR (cm)	C VSR ($cm \times 10^{-3}$)	C OR (cm)
40	6.6	10	6.61	7.2	45	7.24	9.1	10	9.11
60	6.6	10	6.61	7.4	40	7.44	10	21	10.021

	C − A	C − B	μ
40	9.11 − 6.61 = 2.5	9.11 − 7.2 = 1.87	1.3368
60	10.021 − 6.61 = 3.411	10.021 − 7.4 = 2.621	1.301

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Result :-

Refractive Index of given liquid (water) = 1.3189
= 1.32

Calculations:

$$\mu(60ml) = \frac{C-A}{C-B} = \frac{3.411}{2.621} = 1.301$$

$$\mu(40ml) = \frac{C-A}{C-B} = \frac{2.5}{1.87} = 1.3368$$

$$\mu(mean) = \frac{1.3368 + 1.301}{2} = 1.3189$$