SUBJECT : PHYSICS PRACTICAL   CLASS : X
TIME   : 1 HR   MARKS :20

Note: The first 10 minutes have to be spent in reading this paper & checking your apparatus. Use the hour at the end of these 10 minutes to perform your practical.

Write the Aim, Observation, Calculation & Conclusion on a paper provided to you separately for writing. When you fill the observation table while performing your practical, do so in ink only. Do not use a pencil first & then go over it in ink.

Aim – To determine the refractive index of a glass slab.

Apparatus – A wooden board, white sheet of paper, board pins, paper pins glass slab, scale, protractor etc.

Procedure:

1) Take a white sheet of paper & fix it on a wooden board with pins.
2) Place a glass slab on the paper & trace its outline. Mark points A,B,C & D as the points at the corners of its outline.
3) Mark a point I (point of incidence) on the side AB. Draw a normal MN at point I.
4) Draw PI (incident ray) at 40° to this normal.
5) Mark two points P_1 & P_2 on PI which are around 2cm apart.
6) Place the glass slab on the outline drawn & position two pins at P_1 & P_2.
7) Look at the images of P_1 & P_2 from side CD.
8) Fix two pins P_3 & P_4 where the images of P_1 & P_2 are seen so that P_1,P_2,P_3 & P_4 all appear to be in a straight line.
9) Take off the slab & pins. Draw small circles around the pin holes on the sheet.
10) Draw a line segment which passes through P_3 & P_4 & meets CD at point J (point of emergence). Let JK be an emergent ray.
11) Draw a normal $M'N'$ at point J.
12) Join the points I & J. IJ is a refracted ray.
13) With 'I' as a centre & any suitable radius draw a circle which cuts the incident ray PI at point E & a refracted ray IJ at point G.
14) Draw perpendiculars EF & GH from points E & G respectively to the normal MN.

15) Measure EF & GH accurately and record their values in the observation table.

16) Using these values find the refractive index of the glass slab ($_a\mu_g$)

17) On the same paper repeat steps 1 to 16 by drawing another outline of a glass slab & taking an angle of incidence 55°.

18) Repeat same steps by taking an angle of incidence 60°

19) On your answer script (under the observation table) calculate the average refractive index of a glass slab. (correct upto two decimal places)

20) Write your conclusion.

Observation table.

Sr. No.	Angle of incidence $\angle i$	EF (cm)	GH (cm)	Refractive index $_a\mu_g$
1	40°			
2	55°			
3	60°			