

Class X

EXPERIMENT No: 5

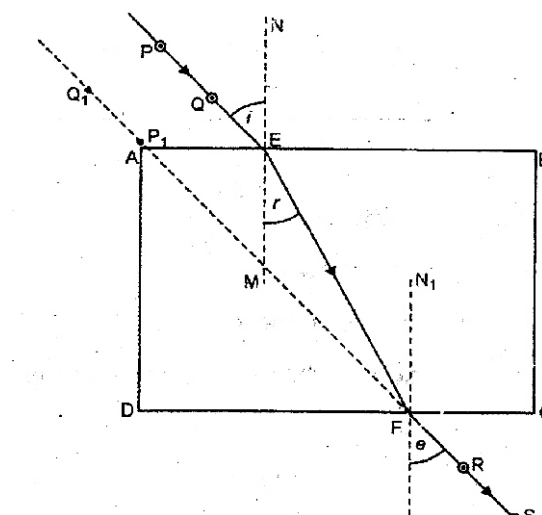
AIM: To trace the path of ray of light, passing through a rectangular glass slab, for different angles of incidence and to measure the angle of incidence, angle of refraction, angle of emergence and interpret the result.

Apparatus / Material Required :

Glass slab (rectangular) A drawing board, all pins, drawing paper/white sheet paper drawing pins, protector, scale and pencil.

Procedure :

1. Fix a plain sheet of paper on a drawing board with help of drawing pins.
2. Place a rectangular glass slab in the middle of the paper and draw its boundary with a sharp pencil.
3. Fix two pins (P and Q) vertically along a straight line on one side of the glass slab.



4. Now look through the glass slab from the other side and fix two pins (R and S), so that those pins and the image of the pins P and Q are in a straight line (when seen through the glass slab).

5. Remove the glass slab and all the pins one by one and draw small circles around the pin pints.
6. Join the points P and Q and extend the line to meet the face AB of the slab at E.
7. Similarly, extend the line obtained by joining points R and S to meet the other face DC of the slab at pt F.
8. Join points E and F.
9. Draw perpendiculars to the two faces of the slab at point E and point F.
10. Measure (i) the angle of incidence (ii) the angle of refraction (iii) and the angle of emergence and record and observation.
11. Repeat th experiment for different angles of incidence and determine the corresponding angle of refraction emergence.

Observation and Calculation:

No.	Angle of incidence (i)	Angle of refraction (ii)	angle of emergence (iii)	Difference between the angle of incidence and angle of emergence (i-e)
1				
2				
3				
4				

Conclusion :

1. Angle of incidence = Angle of emergence
2. Incident ray is parallel to the emergent ray
3. Angle of refraction is less than angle of incidence
4. With the increase in angle of incidence, the angle of refraction increases.

Precautions :

1. The drawing board should be of some soft wood.
2. The pins should be fixed in an upright position.
3. While fixing pins the bases of all the pins should be in the same straight line.