

DIPLOMA IN SCIENCE LABORATORY TECHNOLOGY

LEVEL 6 YEAR 1 EXAMINATIONS

FINAL INTEGRATED SUMMATIVE EXAMINATIONS

SITTING: NOVEMBER / DECEMBER 2025

SUBJECT: FOUNDATION PHYSICS PRACTICAL

TIME: TWO (2) HOURS **TOTAL MARKS: 100**

PASS MARK: 50

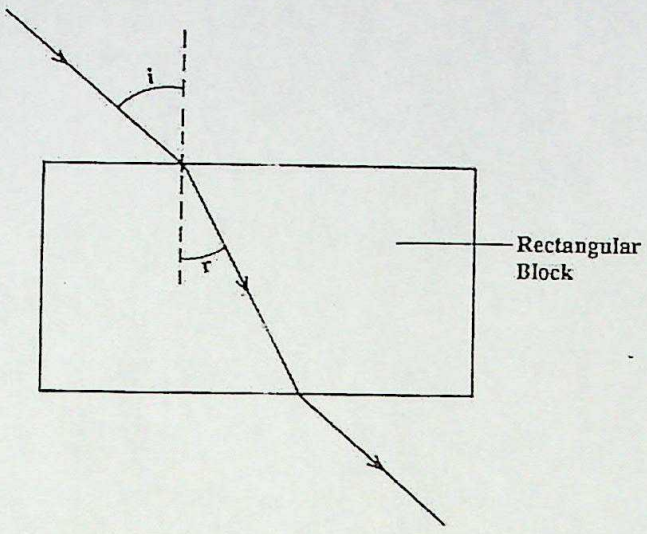
INSTRUCTIONS TO CANDIDATE

1. Write your Examination Number and National Registration Card (NRC) Number on the marking guide provided.
2. This paper has one (1) task. Perform the task as per given procedure
3. Diagrams may be used where necessary to clarify your answer.
4. Cellphones and programmable calculators are not allowed in the examination room

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO

TASK: Determining the refractive index of a rectangular glass block by graphical method

AIM: To determine the refractive index of a rectangular glass block



PROCEDURE:

1. Fasten a sheet of paper to a drawing board or flat surface into which pin scan be pressed easily. **[1 mark]**
2. Draw accurately the outline of the rectangular glass block. **[1 mark]**
3. Using a protractor, draw a normal, in a position as shown in the diagram, and measure the angle of incidence, ***i* = 5°.** **[1 mark]**
4. Press ***pin1*** and ***pin2*** into the paper at the positions shown in the figure above**. [1 mark]**
5. Place the rectangular accurately into the outline. **[1 mark]**
6. With your eye at bench level, look into the rectangular and find a position where the image of ***pin2*** covers ***pin1***.Now press in first ***pin3*** and ***pin4*** so that they in turn cover the images of ***pin1.*** **[1 mark]**
7. Remove all pins and draw the line through ***pin3*** and ***pin4***. **[1 mark]**
8. Remove the glass block, draw in the emergent ray and the refracted ray and measure the angle of refraction, ***r***. **[1 mark]**
9. Repeat the experiment for the other angles of incidences,**0°, 10°, 15°, 20°, 25°, 30°** and **35°.** **[8 marks]**
10. Tabulate values sin(i) and sin(r) using a calculator. **[1 mark]**
11. Plot the graph of ***sin I*** against ***sin r***. **[1 mark]**
12. Calculate the gradient from the graph. **[1 mark]**
13. Calculate the refractive index of the glass block. Take the refractive index of air=1 **[1 mark]**

[Total: 40 marks]