

Worshipful Company of Spectacle Makers

Level 3 Optical Support



Unit 6: Mathematics for Optics for Optical Assistants

Duration: 1 hour

Candidate Number:

Date:

Answer ALL Questions

Number of Supplementary Sheets used (if any), including graph paper.

For office use only

Question number	Unit 6				Total	
	1	2	3	4	Marks	%
Marks						
Moderated						

Examiner's signature

Moderator's signature

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Question 1

If $n \sin i = n' \sin i'$ (known as **Snell's Law**)

Find the following:-

- a) Find i when $n = 1$, $i' = 15^\circ$ and $n' = 1.65$
- b) Find i' when $n = 1$, $i = 25^\circ$ and $n' = 1.56$
- c) Find n' when $n = 1$, $i = 35^\circ$ and $i' = 20^\circ$
- d) Find n when $n' = 1.7$, $i = 40^\circ$ and $i' = 30^\circ$

(20 marks)

Question 1

cover of this booklet.

3. Please **DO NOT** write your name on this booklet. Candidates must remain anonymous for marking purposes.
4. Write your answers as clearly as you can, using a black/blue pen only. Do not use a pencil. If the examiner cannot read your writing or figures you may lose marks, or even receive no marks at all. **Pencils may only be used for graphs and diagrams.**
5. You should read each question carefully, and make sure that you know what you have to do before you start to answer.
6. You must write your answers in the space provided. Additional paper may be used if necessary, but you must show your candidate number and the question number at the top of each sheet; not your name. You must also annotate the box on the front cover of this booklet to show how many extra sheets you used.
7. Please do not write in the margins.
8. Make sure your diagrams are as clear and neat as possible; you will get marks for doing so. If you need to draw a graph, use as large a scale as practicable; this will give the most accurate answer.
9. When answering mathematical questions, write **ALL YOUR CALCULATIONS IN FULL**. Even if you get the final answer wrong, you may get credit for the parts of the calculation that are correct.
10. After you have completed each answer, re-read the question to make sure you have answered it fully.
11. Try to leave yourself enough time to check the completed paper through before handing it in.
12. Do not tear out any part of this booklet. All work must be handed in.
13. Before handing your paper in, ensure your Candidate number is entered clearly on the front of this booklet and on any extra sheets you may have used.
14. Attach any sheets to this booklet and annotate how many there are in the box on the front of this booklet.

When told to do so by the Invigilator, you may turn the paper over and begin