

GCSE Physics B (Twenty First Century Science)
J259/02 Depth in physics (Foundation Tier)

Question Set 2

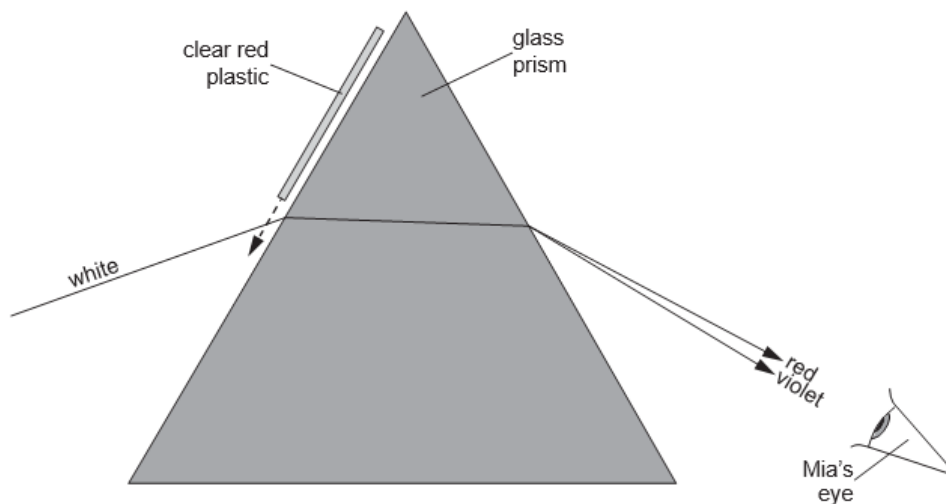
1

This question is about light moving from one medium to another.

Mia uses a ray-box to send a ray of white light into a triangular glass prism. She sees a spectrum of colours coming out.

She slides a sheet of clear red plastic into the path of the light as shown in the diagram.

When the red plastic is in place, she sees that most of the colours in the spectrum have vanished.



(a) Complete the following sentences using the words below.

absorption frequency reflection refraction speed transmission

When light goes from air into glass, it changes direction.

This change of direction is called

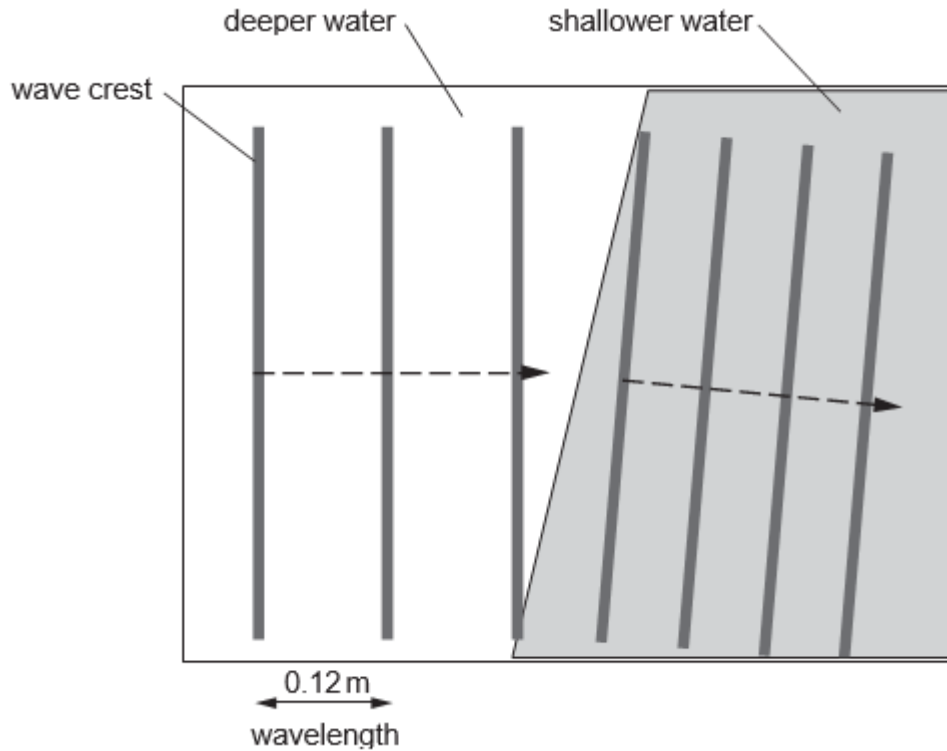
This happens because the light changes its when it enters the glass.

The red plastic removes all colours except red. This is called [3]

(b) This behaviour can be modelled with water waves in a ripple tank.

The diagram shows water waves moving from deeper water into shallower water.

It is viewed from above the ripple tank, with the wave crests shown as thick grey stripes.



(i) The waves were produced at a frequency of 2.5 hertz (Hz).

Calculate the speed of the waves in the deeper water.

Use the equation: wave speed = frequency \times wavelength.

Wave speed = m/s [2]

(ii) Explain how the ripple tank diagram helps to explain the behaviour of light shown in part (a).

[2]

Total Marks for Question Set 2: 7

OCR

Oxford Cambridge and RSA

Copyright Information

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website (www.ocr.org.uk) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact The OCR Copyright Team, The Triangle Building, Shaftesbury Road, Cambridge CB2 8EA.

OCR is part of the Cambridge Assessment Group; Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge