FREE REVISION PACK

Polarisation

Pearson Edexcel International Advanced Level Physics · Unit 2 (WPH12) · Specification points 49

Easy Medium Hard Multiple choice · past-paper questions

5	5	≈ 10 min
QUESTIONS	TOTAL MARKS	SUGGESTED TIME*

Contents

Q	LEVEL	FOCUS	SOURCE	MARKS
1	Easy	Which wave effect sound cannot show	Edexcel IAL October 2019 · Unit 2 · Q6	1 mark
2	Easy	Which waves can be polarised	Edexcel IAL October 2020 · Unit 2 · Q8	1 mark
3	Easy	Lining up two polarising filters again	Edexcel IAL January 2024 · Unit 2 · Q9	1 mark
4	Medium	Rotating a filter in unpolarised light	Edexcel IAL June 2022 · Unit 2 · Q4	1 mark
5	Hard	What polarised oscillations look like	Edexcel IAL January 2020 · Unit 2 · Q2	1 mark

Key ideas to have ready

- Polarised: oscillations in one plane (one direction perpendicular to travel).
- Only transverse waves can be polarised; sound cannot.
- Rotating one filter in unpolarised light does not change the transmitted intensity.
- Two filters: maximum intensity when their axes are parallel (0° or 180° apart), minimum when crossed (90°).

How to use this pack

1. The questions are grouped into levels (Easy, Medium and Hard). Work through them in order, and check your answers at the end of each level before moving on.
2. Every question is multiple choice with one correct answer. Write down your working anyway; that is how you find mistakes.
3. The separate mark scheme uses the same numbers and explains every answer.

Levels are based on how students did in Pearson's examiner reports where that information exists, plus our own difficulty rating. *About 1.5 minutes per question.

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Easy

Definitions and one-step ideas. Most students get these right.

Questions 1–3

Choose **one** answer for each question and put a cross in the box next to it.

Edexcel IAL October 2019 · Unit 2 · Q6

1 Which of the following can **not** be demonstrated in experiments using sound waves?

- ☒ **A** diffraction
- ☒ **B** polarisation
- ☒ **C** refraction
- ☒ **D** superposition

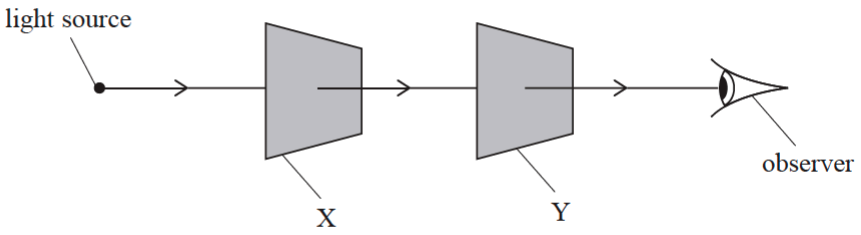
Edexcel IAL October 2020 · Unit 2 · Q8

2 Which of the following statements about waves is correct?

- ☒ **A** Both longitudinal and transverse waves can be polarised.
- ☒ **B** Neither longitudinal nor transverse waves can be polarised.
- ☒ **C** Only longitudinal waves can be polarised.
- ☒ **D** Only transverse waves can be polarised.

Edexcel IAL January 2024 · Unit 2 · Q9

3 Two polarising filters, X and Y, are arranged between a light source and an observer as shown.



The intensity of light reaching the observer is a maximum.

The observer rotates filter X. The observer then rotates filter Y so that the intensity of light is a maximum again.

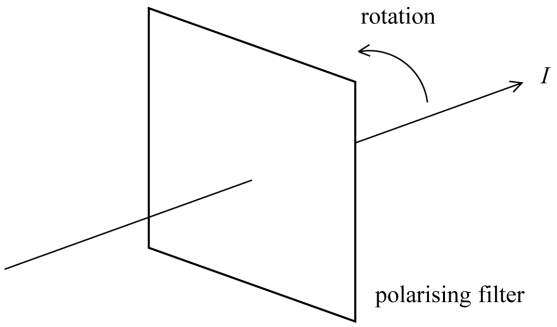
Which row of the table shows possible angles of rotation for the filters?

	Angle of rotation of X	Angle of rotation of Y
☒ **A**	90°	180°
☒ **B**	180°	270°
☒ **C**	270°	90°
☒ **D**	360°	270°

Medium Two or three steps. Roughly a third to a half of students get these right. **Question 4**

Edexcel IAL June 2022 · Unit 2 · Q4

4 A ray of unpolarised light is incident on a polarising filter. The polarising filter transmits light of intensity I, as shown.



The polarising filter is then rotated in the direction shown on the diagram.

Which of the following gives the intensity of light transmitted after the filter has been rotated 90°?

- ☐ **A** 0
- ☐ **B** $\frac{I}{4}$
- ☐ **C** $\frac{I}{2}$
- ☐ **D** I

Hard Several steps, often with a trap built in. Fewer than 3 in 10 students get these right. **Question 5**

Edexcel IAL January 2020 · Unit 2 · Q2

5 Which of the following describes the oscillations in polarised waves?

- ☒ **A** in a single plane which is perpendicular to the direction of wave travel
- ☒ **B** in many planes, which include the direction of wave travel
- ☒ **C** in many directions and parallel to the direction of wave travel
- ☒ **D** in one direction and perpendicular to the direction of wave travel

End of questions. Check your answers with the matching mark scheme. More free packs and 1-to-1 tuition:
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