GET BETTER AT PHYSICS · MARK SCHEME

Viscosity & Stokes' Law: tiered multiple choice

Edexcel IAL Physics · Unit 1 (WPH11) · Specification points 25–26 · 5 questions · 5 marks

1 mark per correct letter

Worked reasoning for every question

How students did = from Pearson examiner reports, where available

Answer key

Q1	Q2	Q3	Q4	Q5
C	C	C	D	B

Easy

Questions 1–5

1 **C**

Conditions for Stokes' law · Edexcel IAL June 2024 · Unit 1 · Q3

Stokes' law, $F = 6\pi\eta rv$, applies only to small spheres moving slowly enough for the flow around them to be laminar (no turbulence).

2 **C**

When Stokes' law applies · Edexcel IAL October 2022 · Unit 1 · Q3

Stokes' law applies to small spheres moving at low speeds, so that the flow around them is laminar. Low viscosity does not guarantee laminar flow; it actually makes turbulence more likely.

3 **C**

Cooling oil and terminal velocity · Edexcel IAL October 2025 · Unit 1 · Q4

The viscosity of a liquid increases as its temperature falls. Greater viscosity means more drag at any speed, so the drag balances the weight (minus upthrust) at a lower speed: the terminal velocity decreases.

4 **D**

What makes sand settle faster · Edexcel IAL June 2019 · Unit 1 · Q5

The sand falls through the water at a terminal velocity set by the viscous drag. A lower viscosity means less drag at a given speed, so a higher terminal velocity and a shorter settling time. Smaller particles, colder water (higher viscosity) and lower terminal velocity would all slow the settling.

How students did: 61% of students got this right in June 2019. The most common wrong answer was C.

5 **B**

Terminal velocity and viscosity · Edexcel IAL January 2022 · Unit 1 · Q6

At terminal velocity, weight − upthrust = $6\pi\eta rv$. For spheres of the same size, a greater viscosity η means a smaller terminal velocity for each mass, so the line is less steep.

End of mark scheme. Answers from Pearson's published mark schemes; explanations written for this pack. Pearson Edexcel material is © Pearson Education Ltd. More free packs and 1-to-1 tuition: **www.getbetteratphysics.co.uk**

GET BETTER AT PHYSICS · WHAT NEXT?

Got some of these wrong?

Good. The questions you got wrong show you exactly what to work on next. The quickest way to fix them is to work through them with someone who marks these papers.

Book a free 15-minute call

Tell me which questions caught you out. We'll talk about what's going wrong and whether 1-to-1 or small-group tuition would help. There's no obligation.

Book your free call

calendly.com/getbetteratphysics/freechat

Scan to book

Current AQA examiner

I know what the mark schemes reward and where marks are lost.

Matched to your exam board

Sessions follow your specification and the topics you find hardest.

Pay per session

No block booking. 1-to-1 or small groups of up to 4.

More free packs

Tiered past-paper questions with full mark schemes, sorted by topic.
getbetteratphysics.co.uk/free-revision-packs

Masterclasses are coming

Want to hear first? Email **helpme@getbetteratphysics.co.uk** and I'll let you know when dates are announced.

Parents: I use these packs in my own tutoring sessions. Tuition options and prices:
getbetteratphysics.co.uk/tuitionpricing