GET BETTER AT PHYSICS · MARK SCHEME

Series & Parallel Circuits: tiered multiple choice

Edexcel IAL Physics · Unit 2 (WPH12) · Specification points 67–68 · 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
D	D	A	D	C

Easy

Questions 1–5

1 **D**

Two 5 Ω resistors in series and in parallel · Edexcel IAL January 2020 · Unit 2 · Q3

Series: R = 5 + 5 = 10 Ω. Parallel: 1/R = 1/5 + 1/5 = 2/5, so R = 2.5 Ω.

How students did: Examiners named this among the best-answered multiple-choice questions on the January 2020 paper.

2 **D**

Effect of closing a switch across a resistor · Edexcel IAL January 2024 · Unit 2 · Q5

Closing the switch connects a wire of negligible resistance across the 5 Ω resistor, so it is short-circuited. The only resistance left in the circuit is the 10 Ω resistor, so it has the full 1.5 V across it and the voltmeter reads 1.50 V.

How students did: 64% of students got this right in January 2024.

3 **A**

Current in one branch of a parallel circuit · Edexcel IAL June 2024 · Unit 2 · Q9

The current through the 4.7 Ω resistor is the total current: I = V/R = 1.4/4.7. At the junction this splits between R and the 0.13 A branch (Kirchhoff's first law), so the current in R = 1.4/4.7 − 0.13.

4 **D**

Total resistance of a series–parallel combination · Edexcel IAL June 2024 · Unit 2 · Q7

The 2 Ω and 3 Ω resistors are in series (5 Ω), and that branch is in parallel with 4 Ω: R = 1/(1/5 + 1/4). The 6 Ω resistor is then in series with this, so add 6.

5 **C**

Resistors with a short circuit · Edexcel IAL October 2024 · Unit 2 · Q8

The 15 Ω resistor is in series with the 7 Ω and 18 Ω in parallel: 15 + 1/(1/7 + 1/18). The 4 Ω resistor has a plain wire connected across it, so it is short-circuited: no current goes through it and it adds nothing.

> **Watch out:** Look for a wire across a resistor: it carries all the current and the resistor drops out.

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