GET BETTER AT PHYSICS · MARK SCHEME

Gravitational Potential: tiered multiple choice

Edexcel IAL Physics · Unit 5 (WPH15) · Specification points 158 · 4 questions · 4 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
B	A	C	B

Easy

Questions 1–4

1 **B**

Change in GPE when a satellite is raised into orbit · Edexcel IAL June 2023 · Unit 5 · Q4

Gravitational potential energy = −GMm/r. At the surface r = R; in orbit r = R + h. Change = −GMm/(R + h) − (−GMm/R) = GMm/R − GMm/(R + h), which is positive (a gain).

2 **A**

Change in GPE as a shuttle falls from a height R · Edexcel IAL October 2022 · Unit 5 · Q7

The shuttle starts at r = 2R from the Earth's centre and ends at r = R. ΔE = (−GMm/R) − (−GMm/2R) = GMm(1/2R − 1/R), which is negative: the shuttle loses GPE.

3 **C**

Change in GPE between two equipotentials · Edexcel IAL October 2024 · Unit 5 · Q5

Change in potential from Y to X = −5.5 − (−3.7) = −1.8 MJ kg^{-1}. Change in GPE = mΔV = 250 × (−1.8 MJ kg^{-1}) = −450 MJ. It is negative because the meteor falls towards Mars and loses GPE.

How students did: Examiners reported that fewer than 60% of students got this right in October 2024. Showing the data as an equipotential diagram seems to have caused difficulty.

4 **B**

Potential and force as the Moon moves away · Edexcel IAL October 2023 · Unit 5 · Q6

The potential due to the Moon, V = −GM/r, becomes less negative as r increases, so it increases. The force F = GMm/r^2 decreases.

How students did: Examiners reported that fewer than 60% of students got this right in October 2023.

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