

APOLLO

Doppler effect

SL

Physics

First assessment 2025

3 questions | mark schemes

Mark-scheme answers

Physics SL | Paper 1A | May 2025 TZ1 | Q16 | 1 marks

16. A

2.	a	i	Wavelength = 0.68 «m» ✓ Period = 0.002 «s» ✓	Accept 0.67 – 0.70 m for wavelength.	2
2.	a	ii	$v = \lambda/T = 0.68 / 0.002 = \text{» } 340 \text{ «m s}^{-1}\text{»}$ ✓	Allow ECF from 2ai Allow $v = 335 - 350 \text{ m s}^{-1}$	1
2.	b	i	440 Hz because the frequency heard <<by the driver>> will be higher OR 440 Hz because the <<apparent>> wavelength decreases. ✓		1

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2225 – 6724M

2.	b	ii	Use of $\frac{v}{c} = \frac{\Delta\lambda}{\lambda} = \frac{(659 \times 10^{-9}) - (656.1 \times 10^{-9})}{(656.1 \times 10^{-9})}$ ✓ $v = 1.33 \times 10^6 \text{ «m s}^{-1}\text{»}$ OR 0.00442 c ✓		2
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2225 – 6724M

Question	Answers	Notes	Total
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Mark-scheme answers

Physics SL | Paper 1A | Nov 2025 TZ3 | Q16 | 1 marks

16. D