

Name of the Student: _____

Max. Marks : 17 Marks

Time : 17 Minutes

Mark Schemes

Q1.

Question Number	Answer	Additional guidance	Mark
	recall and substitution (1) $(v =) 0.25 \times 1.5$ evaluation (1) 0.38 (m/s)	accept 0.375 or 0.37 (m/s) accept 37.5, 37 or 38 for 1 mark only award full marks for the correct answer without working	(2)

Q2.

Question number	Answer	Additional guidance	Mark
	uses data taken from x axis (1) 28(cm) (1)	award full marks for correct answer without working	(2) AO3

Q3.

Question Number	Answer	Additional guidance	Mark
(i)	selection and substitution (1) $3(.00) \times 10^8 = 2.45 (\times 10^9) \times \lambda$ rearrangement (1) $(\lambda =) \frac{3(.00) \times 10^8}{2.45 (\times 10^9)}$ evaluation (1) 0.12 (m)	allow substitution and rearrangement in either order $2.45 (\times 10^9) = \frac{3(.00) \times 10^8}{\lambda}$ $\lambda = \frac{v}{f}$ accept 0.122(m) power of ten error gains 2 marks award full marks for the correct answer without working	(3) AO2

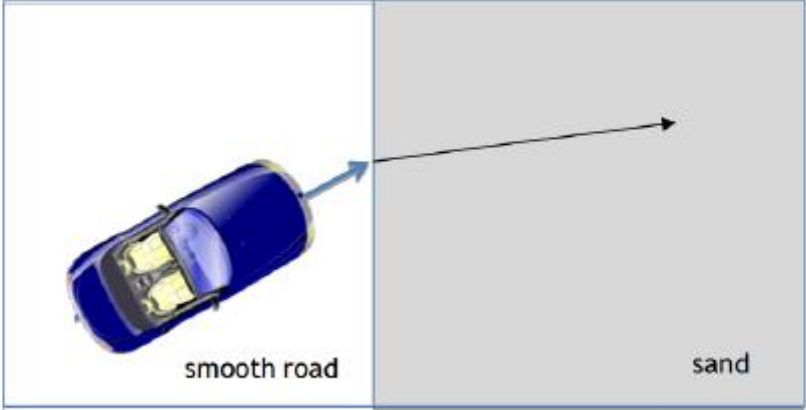
Question Number	Answer	Additional guidance	Mark
(ii)	<p>selection and substitution (1)</p> $(0.)55 = \frac{42\,000}{\text{total energy supplied (to device)}}$ <p>rearrangement (1)</p> $(\text{total energy supplied to device}) = \frac{42\,000}{(0.)55}$ <p>evaluation (1)</p> <p>76 000(J)</p>	<p>allow substitution and rearrangement in either order</p> $(0.)55 = \frac{42\,000}{x}$ <p>accept any value that rounds to 76 000(J)</p> <p>760/764/763(J) gains 2 marks</p> <p>any other power of ten error gains 1 mark</p> <p>award full marks for the correct answer without working</p>	(3) AO2

Q4.

Question number	Answer	Mark
(i)	<p>An answer that combines the following points of understanding to provide a logical description:</p> <ul style="list-style-type: none"> take time T for waves to pass a fixed point (1) and frequency = $\frac{\text{number of waves}}{\text{time taken}}$ (1) 	(2)

Question number	Answer	Mark
(ii)	A	(1)
Question number	Answer	Mark
(iii)	D	(1)

Q5.

Question number	Answer	Mark
(i)	 <p>smooth road</p> <p>sand</p> <p>approx</p>	(1)

Question number	Answer	Additional guidance	Mark
(ii)	<p>An explanation that combines identification - knowledge (1 mark) and reasoning/justification - understanding (1 mark):</p> <ul style="list-style-type: none"> both car and light ray slow down when entering sand / glass (1) direction changes towards normal (1) 	Bend towards the normal	(2)