

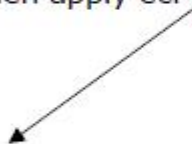
Name of the Student: \_\_\_\_\_

Max. Marks : 20 Marks

Time : 20 Minutes

Mark Schemes

Q1.

Question Number	Answer	Additional guidance	Mark
	substitution (1) <u>1</u> 17 or 0.17  evaluation (1) 5.882... evaluation to 2sf (1) 5.9 (any answer to 2 sf for this mark, but not if wrong rounding is seen)	lose this mark if there is <b>any other power of 10 error</b> but then apply ecf (e.g. 1/1.7)   so 0.588 then = 1 mark for that ecf  independent mark  award full marks for the correct answer without working	<b>(3)</b> AO 2 1

Question Number	Answer	Mark
(i)	<p><b>A ray box</b></p> <p><i>B is not correct because a ruler does not produce a beam of white light</i></p> <p><i>C is not correct because a measuring cylinder does not produce a beam of white light</i></p> <p><i>D is not correct because an ammeter does not produce a beam of white light</i></p>	(1) AO1

Question Number	Answer	Mark
(ii)	<p><b>C green</b></p> <p><i>A is not correct because red appears at the start of the spectrum</i></p> <p><i>B is not correct because orange appears in the middle of the spectrum</i></p> <p><i>D is not correct because violet appears at the end of the spectrum</i></p>	(1) AO1

Q3.

Question number	Answer	Additional guidance	Mark
	shorter / less / smaller (1)  greater / larger / more / stronger (1)	lower  higher	<b>2</b>  <b>AO1.1</b>

Q4.

	Answer	Additional guidance	Mark
(i)	x-ray(s)	allow X x no mark if more than one wave given e.g. x-rays and gamma rays scores 0	(1) AO1

	Answer	Additional guidance	Mark
(ii)	infrared	allow any recognisable spelling IR ir  no mark if more than one wave given e.g. infrared and gamma rays scores 0	(1) AO1

	Answer	Additional guidance	Mark
(iii)	infrared	allow any recognisable spelling IR ir  no mark if more than one wave given e.g. infrared and gamma rays scores 0	(1) AO1

	Answer	Additional guidance	Mark
(iv)	gamma (rays)	allow any recognisable spelling y  no mark if more than one wave given e.g. gamma rays and UV scores 0	(1) AO1

Q5.

Question number	Answer	Additional guidance	Mark
	diminished/smaller (1)  real (1)	accept recognisable spellings e.g. reel  do not credit not virtual	<b>2</b> <b>AO2.2</b>

Q6.

	Answer	Acceptable answers	Mark
<b>(i)</b>	A the focal length (1)		<b>(1)</b>
<b>(ii)</b>	smaller than (1) real (1)		<b>(2)</b>

Q7.

Question Number	Answer	Additional guidance	Mark
	<p>a description including any four from <b>one</b> method</p> <p><b>Using temperature change method:</b></p> <p>any one control (1)</p> <p>start the stopclock and switch on the heater (at the same time) (1)</p> <p>measure over a certain time (1)</p> <p>measure final temperature of each (1)</p> <p>largest temperature difference/rise gives better absorbing surface (1)</p>	<p>allow testing each can separately (two experiments)</p> <p>same distance from heater same volume/mass of water allow same volume/surface area of cans lids on both cans</p> <p>start the stopclock and measure initial temperature (at the same time)</p> <p>Accept 'highest temperature is better'</p>	<p>(4) AO1</p>

	<p><b>Using time change method:</b></p> <p>any one control (1)</p> <p>switch on the heater and start the stopclock (at the same time) (1)</p> <p>measure time taken (1)</p> <p>to reach a certain temperature (1)</p> <p>quickest time to reach a certain temperature gives better absorbing surface (1)</p>	<p>same distance from heater  same volume/mass of water  allow same volume/surface area of cans  lids on both cans</p> <p>accept 'fastest (to reach temperature) is better'</p>	
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