Question number		Answer	Notes	Marks
7	(a)	C and D ticked with A and F unticked = 1 mark; all of B, C, D and E ticked with A and F unticked = 2 marks;; <table><tr><td>Sound wave</td><td>Frequency in Hz</td><td>Can be heard by humans</td></tr><tr><td>A</td><td>10</td><td></td></tr><tr><td>B</td><td>30</td><td>✓</td></tr><tr><td>C</td><td>500</td><td>✓</td></tr><tr><td>D</td><td>2000</td><td>✓</td></tr><tr><td>E</td><td>10 000</td><td>✓</td></tr><tr><td>F</td><td>25 000</td><td></td></tr></table>	if either A or F ticked then award 0 marks	2
	(b)	wave drawn with lower amplitude throughout; wave drawn with lower frequency throughout;	ignore vertical position of wave in the grid peak to peak should be less than 4 squares vertically throughout trace should be less than 2½ waves in the trace	2
	(c) (i)	conversion of temperature into kelvin; substitution and evaluation; e.g. temperature = 46 + 273 = 319 K speed = (0.606 × 319) + 166 = 360 (m/s)	allow 319 seen anywhere in working apply ecf if 46 used as kelvin temperature giving 194, 193.9, 193.876 (m/s) for 1 mark **allow 359, 359.3... (m/s)**	2
	(ii)	substitution into speed = frequency × wavelength; rearrangement; evaluation; e.g. 360 = 15 000 × wavelength wavelength = 360 / 15 000 (wavelength =) 0.024 (m)	allow ecf from (i) use of 194 (m/s) from (i) gives an answer of 0.013 (m) answer of 0.023 gets 2 marks only **allow 0.02, 0.0239... (m)**	3

Total for Question 7 = 9 marks