

| Question number | Answer  | Notes  | Marks |
|-----------------|---|--|-------|
| 5 (a)           | frequency;  | ignore unit for frequency<br><br>reject response with more than one quantity/property  | 1     |
| (b)             | C chosen;   | condone E chosen<br>condone 'C and E'<br>condone 'C or E'  | 2     |
|                 | (because) humans can hear up to 20 kHz / 20 000Hz;  | accept additional reasonable qualification<br>e.g. idea of upper range decreasing with age or hearing loss   |       |
| (c) (i)         | substitution into $f = 1/T$ ;   | accept use of standard form throughout<br><br>working required   | 3     |
|                 | rearrangement;  | working required   |       |
|                 | evaluation in seconds and appropriate conversion to ms;   | -1 for POT error   |       |
| (ii)            | e.g.<br>$500 = 1/T$<br><br>$T = 1/500$<br>$T = 0.002 \text{ s} = 2(.0) \text{ (ms)}$<br><br>one or more complete wave(s) drawn with consistent period by eye;<br><br>each cycle is 4 squares;<br><br> | accept reverse argument<br>i.e.<br>converted to 0.002;<br>substituted i.e. $f = 1/0.002$ ;<br>evaluated to get 500 Hz;<br><br>ignore amplitude<br>e.g. all half-cycles the same number of squares horizontally<br><br>mark independently | 2     |

Total for Question 5 = 8 marks