

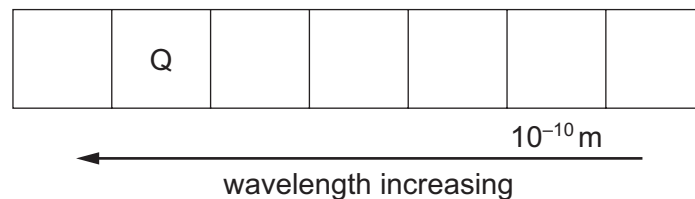
- 25 A buzzer emitting sound of frequency 846 Hz is attached to a string and rotated in a horizontal circle. The linear speed of the buzzer is  $25.0 \text{ m s}^{-1}$ .



The speed of sound is  $340 \text{ m s}^{-1}$ .

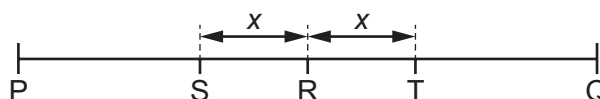
What is the maximum frequency heard by the observer?

- A 783 Hz      B 788 Hz      C 908 Hz      D 913 Hz
- 26 The diagram shows the principal regions of the electromagnetic spectrum, with some details labelled. The diagram is not to scale.



What is a typical order of magnitude of the wavelength of the radiation in region Q?

- A  $10^{-7} \text{ m}$       B  $10^{-5} \text{ m}$       C  $10^{-2} \text{ m}$       D  $10^0 \text{ m}$
- 27 P and Q are fixed points at the end of a string. A transverse stationary wave of constant maximum amplitude is formed on the string.



P, R and Q are the only points on the string where nodes are formed. S and T are two points on the string at a distance  $x$  from R.

What is the relationship between points S and T?

- A the same amplitude and in phase  
 B different amplitudes and in phase  
 C the same amplitude and a phase difference of  $180^\circ$   
 D different amplitudes and a phase difference of  $180^\circ$