**25** An electromagnetic wave in free space has a frequency of  $2.5 \times 10^{14}$  Hz.

Which region of the electromagnetic spectrum includes this frequency?

- **A** infrared
- **B** microwave
- **C** ultraviolet
- **D** X-ray
- **26** Two polarising filters are placed next to each other so that their planes are parallel.

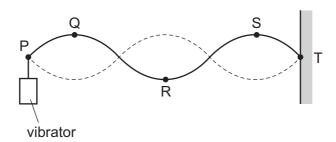
The first polarising filter has its transmission axis at an angle of  $50^{\circ}$  to the vertical.

The second polarising filter has its transmission axis at an angle of 20° to the vertical. The angle between the transmission axes of the two polarising filters is 30°.

A beam of vertically polarised light of intensity 8.0 W m<sup>-2</sup> is incident normally on the first polarising filter.

What is the intensity of the light that is transmitted from the second polarising filter?

- A zero
- **B**  $2.5 \, \text{W m}^{-2}$
- $C 2.9 \, W \, m^{-2}$
- **D**  $6.0 \,\mathrm{W}\,\mathrm{m}^{-2}$
- 27 A stationary wave on a stretched string is set up between two points P and T.



Which statement about the stationary wave is correct?

- A Point R is at a node.
- **B** Points Q and S vibrate in phase.
- **C** The distance between P and T is three wavelengths.
- **D** The wave transfers energy from P to T.