Electromagnetic Spectrum

New Regents original practice • Name: _____ Date: _____
Show your work for written answers.

Use the electromagnetic spectrum in the 2025 Chemistry Reference Tables. Compare wavelengths in the same units.

1 Which type of radiation has shorter wavelengths than visible light?

(1) Radio waves

(2) Microwaves

(3) Infrared radiation

(4) Ultraviolet radiation

2 Place infrared, visible, and ultraviolet radiation in order from longest to shortest wavelength. Use the spectrum to explain your ordering. [1]

Answer and work

3 Convert 1.20×10^{-6} m to nanometers. Use 1 nm = 10^{-9} m. [1]

Answer and work

4 Which property is common to all electromagnetic waves traveling through a vacuum?

(1) Speed

(2) Wavelength

(3) Frequency

(4) Photon energy

Sources for Optical Sensors

Use the information below to answer the questions.

An engineer compares four light sources. One sensor is sensitive to wavelengths from 800 to 1,000 nm. A second sensor is sensitive to wavelengths from 270 to 310 nm.

Source	Peak wavelength (nm)
P	290
Q	530
R	940
S	1,250

5 Which source has a peak within the first sensor’s range?

(1) P

(2) Q

(3) R

(4) S

6 Identify the part of the electromagnetic spectrum that contains source P’s peak. Explain using its wavelength. [1]

Answer and work

7 Which source peaks in the visible region of the reference spectrum?

(1) P

(2) Q

(3) R

(4) S

8 Can one of these sources have its peak in both sensor ranges at once? Use the given ranges to explain. [1]

Answer and work