

Marks
6

- Ozone in the upper atmosphere absorbs light with wavelengths of 220 to 290 nm. What are the frequency (in Hz) and energy (in J) of the most energetic of these photons?

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Frequency:

Energy:

Carbon-carbon bonds form the backbone of nearly every organic and biological molecule. The average bond energy of the C–C bond is 347 kJ mol^{-1} . Calculate the wavelength (in nm) of the least energetic photon that can break this bond.

Wavelength:

Compare this value to that absorbed by ozone and comment on the ability of the ozone layer to prevent C–C bond disruption.

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