

70. (a) The energy difference between the two states 1 and 2 was equal to the energy of the photon emitted. Since the photon frequency was $f = 1666 \text{ MHz}$, its energy was given by $hf = (4.14 \times 10^{-15} \text{ eV} \cdot \text{s})(1666 \text{ MHz}) = 6.90 \times 10^{-6} \text{ eV}$. Thus,

$$E_2 - E_1 = hf = 6.9 \times 10^{-6} \text{ eV} = 6.9 \mu\text{eV} .$$

- (b) The emission was in the *radio* region of the electromagnetic spectrum.