

Simple questions about photons

Question 1

Two light sources give out identical beams of red light. The supply to one of the sources is turned up to increase the brightness of the beam. The source with the brighter beam gives out: A. the same number of photons/second of higher frequency. B. more photons/second of the same frequency. C. more photons/second of higher frequency. D. more photons/second of lower frequency.

Question 2

Ultraviolet light causes sunburn of the skin whereas infrared light does not. This is because: A. the infrared light needs more time to build up sufficient energy to cause sunburn. B. the infrared photons are bigger than the ultraviolet photons. C. the ultraviolet photons are bigger than the red photons. D. the intensity of the infrared light needs to be increased.

Question 3

When even a very weak beam of blue light is shone on sodium metal, an effect takes place such that electrons are released immediately from the surface of the sodium. This effect must be due to: A. many relatively low-energy photons arriving each second. B. a few relatively low-energy photons arriving each second. C. many relatively high-energy photons arriving each second. D. a few relatively high-energy photons arriving each second.