Photoelectric Effect Questions

Name:			Date:	
$E_{\gamma} = hf$	$E_k = E_{\gamma} - W$	$c = f\lambda$	$h = 6.63 \times 10^{-34} J \cdot s$	

 The work function of potassium is 2.24 eV. If potassium metal is illuminated with light of wavelength 350 nm, find (a) the maximum kinetic energy of the photoelectrons and (b) the cutoff wavelength.

Consider the metals lithium, beryllium, and mercury, which have work functions of 2.3 eV, 3.9 eV, and 4.5 eV, respectively. If light of wavelength 300 nm is incident on each of these metals, determine (a) which metals exhibit the photoelectric effect and (b) the maximum kinetic energy for the photoelectron in each case.

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3. A light source of wavelength, λ , illuminates a metal and ejects photoelectrons with a maximum kinetic energy of 1 eV. A second light source with half the wavelength of the first ejects photoelectrons with a maximum kinetic energy of 4 eV. Calculate the work function of the metal.

4. When cesium metal is illuminated with light of wavelength 300 nm, the photoelectrons emitted have a maximum kinetic energy of 2.23 eV. Find (a) the work function of cesium and (b) the stopping potential if the incident light has a wavelength of 400 nm.