Photoelectric effect
Preparatory questions

1. What is the energy range (in eV's) of the visible light photon energy?

2. If a certain metal with a work function of W=2.5 eV is illuminated by monochromatic light of wavelength 3500 °A, what is the maximum kinetic energy of the electrons ejected in the photoelectric effect? Will this depend on the intensity of the light – explain your answer?

3. Make a sketch of the expected curves of current against retarding voltage when the cathode of the tube is illuminated with light of wavelengths 3650 °A, 4360 °A, 5460 °A, and 5775 °A, respectively. Assume W=2.5 eV.

4. Is it possible to obtain the value of Planck's constant using the photoelectric experimental setup? If so describe the procedure and what assumptions need to be made.

5. Is the photoelectric effect possible for free electrons? (hint: use conservation of energy and momentum).