

Question 6**(6 marks)**

The photoelectric effect equation is

$$\frac{1}{2}mv_{\max}^2 = hf - W$$

The maximum kinetic energy of a liberated electron is equal to the difference between the energy of the incoming photon and the work function of the metal target.

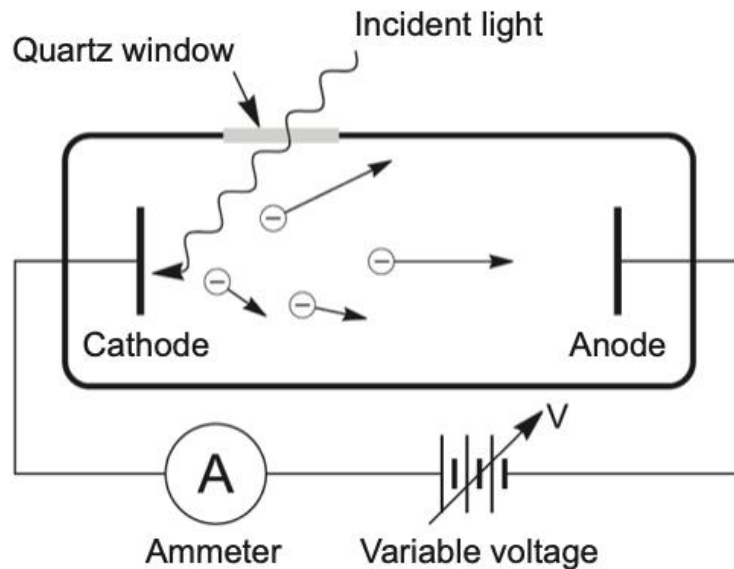


Figure 1: Photoelectrons are released from a metal target in a vacuum tube

- (a) Describe how, and under what circumstances, electrons are liberated from the target by incoming photons. (2 marks)

- (b) Discuss how the maximum kinetic energy of the liberated electrons is experimentally determined. (4 marks)
