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.

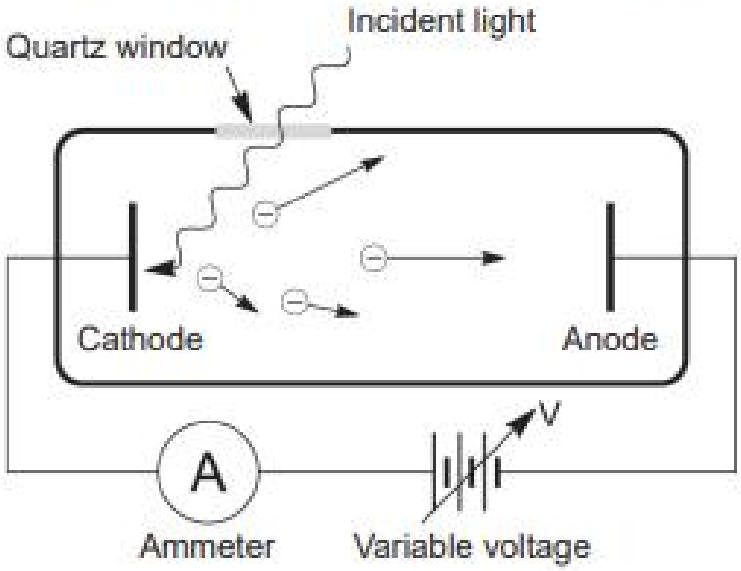

Figure 1: Photoelectrons are released from a metal target in a vacuum tube

(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)