Photoelectric effect

1. When metals are incident with light of some frequency or above, electrons are emitted from them at different speeds. This phenomenon is known as photoelectric effect and ejected electrons are called photoelectrons.
2. The minimum frequency at which electrons are ejected is known as threshold frequency and corresponding wavelength is called threshold wavelength.
3. The minimum energy of photon at which electrons are ejected from metal surface is known as work function of that metal.
4. One electron can gain energy from only one photon and one photon can give energy to only one electron.
5. When photons having higher energy than work function falls on metal surface extra energy is converted into kinetic energy of electron.
6. Einstein gave photoelectric equation relating energy of falling photon, work function and maximum kinetic energy of electron.

$$\textbf{K.E.} = \textbf{h}\textbf{v} - \boldsymbol{\Phi}$$

Where

v= frequency of falling radiation
Φ= work function of metal

Also $\textbf{h}\textbf{v}_0 = \boldsymbol{\Phi}$
v_0 = threshold frequency
    Equation can also be written as

$$\textbf{K.E.} = \textbf{h}(\textbf{v} - \textbf{v}_0)$$

7. The no. of electrons ejected depends upon intensity of falling radiation and maximum kinetic energy hence stopping potential depends upon frequency of radiation.