

cannot eject electrons no matter how long it falls on the surface or how high is its intensity.

(iii) The kinetic energy of the ejected electrons is directly proportional to the frequency of the incident radiation and is independent of its intensity.

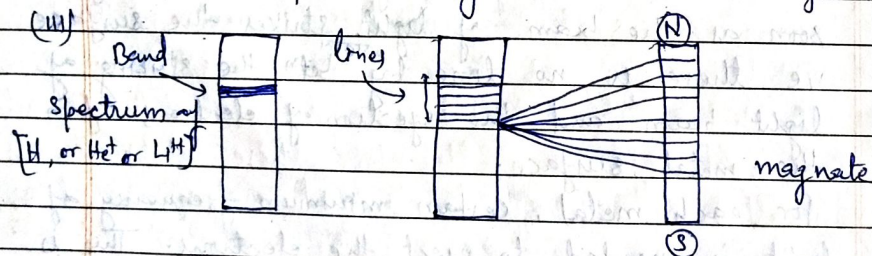
(iv) The number of electrons ejected per second from the metal surface depends upon the intensity or brightness of incident radiation but does not depend upon its frequency.

* Defects of Bohr's atomic model: $\rightarrow$

(i) Bohr's atomic model fails to explain why electron can revolve only on those orbits for which

$$mvr = \frac{nh}{2\pi}$$

(ii) (H , He^+ , Li^{++}) Bohr's model explained spectrum of hydrogen atom or hydrogen like ions having only one electron, but it fails to explain spectrum of multi electron system.

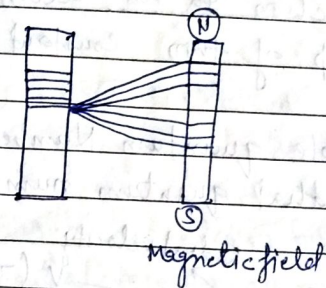


Bohr's atomic model fails to explain existence of spectral lines.

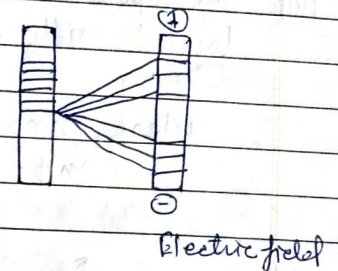
(v) Bohr's model fails to explain Zeeman effect in magnetic field and electric field (Stark effect).

(a) Zeeman effect $\rightarrow$ (In magnetic field)

Splitting of spectral line in presence of magnetic field. (fig-1)



(fig-1)



(fig-2)

(b) Stark effect $\rightarrow$ (In electric field)

Splitting of spectral line in presence of electromagnetic field is called Stark effect.

* Bohr's Sommerfeld Model (1915) $\rightarrow$

(i) All moving electrons orbits are not circular rather some are electrical or elliptical (fig 1 & 2).

