

GIST of CONCEPT MAP ON DUAL NATURE OF MATTER

1. When light of suitable frequency illuminates a metal surface, electrons are emitted from metal surface. These photo (light) – generated electrons are called photo electrons.
2. The no. of Photo electrons emitted per second is directly proportional to the intensity of incident radiation.
3. The minimum negative potential given to plate A for which the photo current stops or becomes zero is called the cutoff or stopping potential
$$K_{\max} = eV_0$$
4. The maximum kinetic energy of the photoelectrons varies linearly with a frequency of incident radiation. The stopping potential V_0 varies linearly with a frequency of incident radiation for a give photo sensitive material.
5. Radiation energy is built up of discrete units- which called energy of radiation. Moving particles of matter should display wave like properties under suitable conditions.
6. DIAGRAMS
 - A) Fig.11.2 page No. 390 NCERT TEXT BOOK variation of photoelectric current with intensity of light.
 - B) Fig.11.3 page No. 391 NCERT TEXT BOOK variation of photoelectric current with collector plate potential for different intensity of incident radiation.
 - C) Fig.11.4 page No. 391 NCERT TEXT BOOK variation of photoelectric current with collector plate potential for different frequencies of incident radiation.
 - D) Fig.11.5 page No. 392 NCERT TEXT BOOK variation of stopping potential with frequency of incident radiation for a given photo sensitive material.

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