



Video Solution on Website:-

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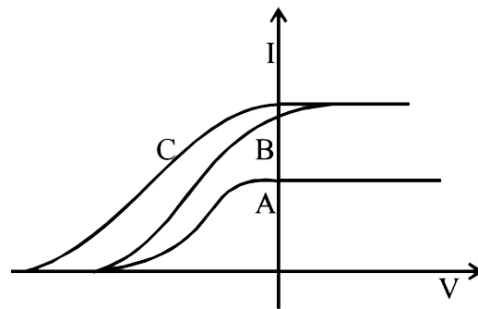
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<https://youtu.be/ZvA510xlwaU>

Written Solution on Website:-

<https://physicsaholics.com/note/notesDetails/19>

- Q 1. Light of frequency ν falls on material of threshold frequency ν_0 . Maximum kinetic energy of emitted electron is proportional to:
- (a) $\nu - \nu_0$ (b) ν
(c) $\sqrt{\nu - \nu_0}$ (d) ν_0
- Q 2. When ultraviolet light of photon energy 6.2 eV incidents on a aluminium surface, it emits photo electrons. If work function for aluminium surface is 4.2 eV, then kinetic energy of emitted electrons is-
- (a) 3.2×10^{-19} J (b) 3.2×10^{-17} J
(c) 3.2×10^{-16} J (d) 3.2×10^{-11} J
- Q 3. The work function of a substance is 4.0 eV. The longest wavelength of light that can cause photoelectron emission from this substance is approximately-
- (a) 540 nm (b) 400 nm (c) 310 nm (d) 220 nm
- Q 4. In photoelectric effect if the intensity of light is doubled then maximum kinetic energy of photoelectrons will become
- (a) Double (b) Half
(c) Four time (d) No change
- Q 5. When photons of energy $h\nu$ are incident on the surface of photosensitive material of work function $h\nu_0$, then -
- (a) the kinetic energy of all emitted electrons is $h\nu_0$
(b) the kinetic energy of all emitted electrons is $h(\nu - \nu_0)$
(c) the kinetic energy of all fastest electrons is $h(\nu - \nu_0)$
(d) the kinetic energy of all emitted electrons is $h\nu$
- Q.6 When the electromagnetic radiations of frequencies 4×10^{15} Hz and 6×10^{15} Hz fall on the same metal, in different experiments, the ratio of maximum kinetic energy of electrons liberated is 1 : 3 . The threshold frequency for the metal is:
- (a) 2×10^{15} Hz (b) 1×10^{15} Hz
(c) 3×10^{15} Hz (d) 1.67×10^{15} Hz
- Q 7. In a photoelectric experiment anode potential is plotted against plate current. Then:



- (a) A and B will have same intensity while B and C will have same frequencies
 (b) B and C will have different intensities while A and C will have different frequencies
 (c) A and B will have different intensities while A and C will have equal frequencies
 (d) B and C will have equal intensities while A and B will have same frequencies
- Q 8. A surface is irradiated with ultra violet radiation of wavelength 0.2 micrometer. If the maximum velocity of electron liberated from the surface is 8.8×10^5 m/s, then the work function of the surface is
 (a) 3 eV (b) 4 eV (c) 5 eV (d) 6 eV
- Q 9. A metal ball is illuminated by UV radiation of wavelength 200 nm. The work function of metal is 2 eV. The electric potential acquired as a result of photoelectric effect is
 (a) 4.2 V (b) 3.2 V
 (c) 1.2 V (d) Data insufficient
- Q 10. Photoelectric effect is observed from a surface for frequency's 3×10^{14} Hz and 2×10^{14} Hz for incident radiation. If maximum kinetic energies are in ratio 2 : 1 then threshold frequency is
 (a) 10^{14} Hz (b) 1.5×10^{14} Hz
 (c) 1.33×10^{14} Hz (d) None of these
- Q 11. Which of the following statements are incorrect about photoelectric effect?
 (a) Photoelectric effect supports quantum nature of radiation
 (b) Maximum kinetic energy of photoelectric effect is proportional to frequency of incident radiation
 (c) The phenomena of photoelectric effect is almost instantaneous
 (d) Saturation photocurrent is proportional to intensity of radiation
- Q 12. Which metal will be suitable for a photo electric cell using light of wavelength 4000 \AA . The work functions of sodium and copper are respectively 2.0 eV and 4.0 eV.
 (a) sodium (b) copper
 (c) Both (d) None of both
- Q 13. The work function for the surface of aluminum is 4.2 eV. What will be the wavelength of that incident light for which the stopping potential will be zero.
 (a) 2496 \AA (b) $2946 \times 10^{-7} \text{ m}$
 (c) 2649 \AA (d) 2946 \AA



- Q 14. When light source is placed at 1 m distance from photo electric cell, then value of stopping potential is obtained 4 volt. If it is placed at 4 m distant, then value of stopping potential becomes –
- (a) 2 volt (b) 1 volt
(c) 4 volt (d) 16 volt
- Q 15. Which of the following statement is wrong ?
- (a) photoelectric current depends on intensity
(b) the maximum kinetic energy of emitted electrons is equal to eV_s where V_s is stopping potential
(c) at stopping potential on increasing the intensity of light photoelectric current increases
(d) the maximum energy of photoelectron does not depend on the intensity of light
- Q 16. In photoelectric effect work function of any metal is 2.5 eV. Emitted electrons are stopped by the potential of -1.5 volt then –
- (a) energy of incident photons is 4 eV
(b) energy of incident photons is 1 eV
(c) photoelectric current increases when we use photons of high frequency
(d) none of the above
- Q 17. If the frequency of light in a photoelectric experiment is doubled, the stopping potential will –
- (a) be doubled
(b) be halved
(c) become more than double
(d) become less than double
- Q 18. Slope of curve between stopping potential and frequency depends on –
- (a) nature of material (b) intensity
(c) both (d) none of these

Answer Key

Q.1 a	Q.2 a	Q.3 c	Q.4 d	Q.5 c
Q.6 c	Q.7 d	Q.8 b	Q.9 a	Q.10 a
Q.11 b	Q.12 a	Q.13 d	Q.14 c	Q.15 c
Q.16 a	Q.17 c	Q.18 d		