

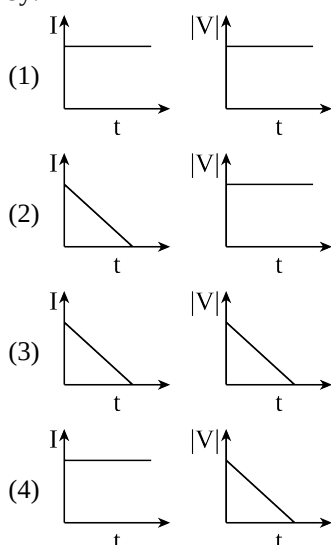
NEET DUAL NATURE OF RADIATION AND MATTER — PHOTOELECTRIC EFFECT: EXPERIMENTAL STUDY — PYQS

Max. Marks: 52

Questions: 13

Section A (MCQ) — 13 questions

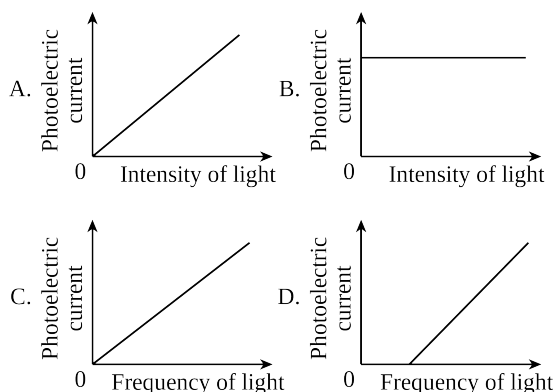
- Q.1** A beam of light falls on a metal surface such that photo-electrons are generated. If power of the light source starts to decrease linearly with time t , then variation of the photocurrent I and magnitude of the stopping potential $|V|$ with time is best represented by: [RE-NEET (UG) 2026]



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- Q.2** Which of the following options represent the variation of photoelectric current with property of light shown on the x-axis? [NEET (UG) 2025]



- (1) A and D (2) B and D (3) A only (4) A and C

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- Q.3** Light of frequency 1.5 times the threshold frequency is incident on a photosensitive material. What will be the photoelectric current if the frequency is halved and intensity is doubled?

[NEET (UG) 2020]

- (1) four times (2) one-fourth
(3) zero (4) doubled

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- Q.4** A source of light is placed at a distance of 50 cm from a photo cell and the stopping potential is found to be V_0 . If the distance between the light source and photo cell is made 25 cm, the new stopping potential will be : [NEET 2013 (Karnataka)]

- (1) $V_0/2$ (2) V_0 (3) $4V_0$ (4) $2V_0$

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- Q.5** Photoelectric emission occurs only when the incident light has more than a certain minimum

[AIPMT 2011 (Prelims)]

- (1) power (2) wavelength
(3) intensity (4) frequency

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- Q.6** When monochromatic radiation of intensity I falls on a metal surface, the number of photoelectrons and their maximum kinetic energy are N and T respectively. If the intensity of radiation is $2I$, the number of emitted electrons and their maximum kinetic energy are respectively [AIPMT 2010 (Mains)]

- (1) N and $2T$ (2) $2N$ and T
(3) $2N$ and $2T$ (4) N and T

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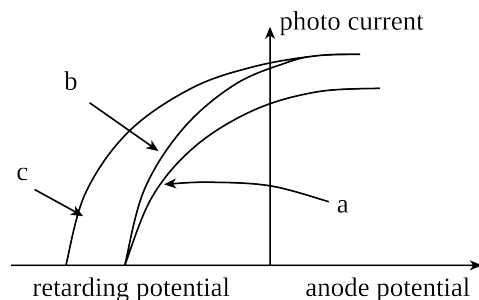
- Q.7** The number of photo electrons emitted for light of a frequency ν (higher than the threshold frequency ν_0) is proportional to [AIPMT 2009]

- (1) threshold frequency (ν_0)
- (2) intensity of light
- (3) frequency of light (ν)
- (4) $\nu - \nu_0$

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- Q.8** The figure shows a plot of photo current versus anode potential for a photo sensitive surface for three different radiations. Which one of the following is a correct statement? [AIPMT 2009]



- (1) Curves (a) and (b) represent incident radiations of same frequency but of different intensities.
- (2) Curves (b) and (c) represent incident radiations of different frequencies and different intensities.
- (3) Curves (b) and (c) represent incident radiations of same frequency having same intensity.
- (4) Curves (a) and (b) represent incident radiations of different frequencies and different intensities.

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- Q.9** A 5 watt source emits monochromatic light of wavelength $5000 \text{ \AA}$. When placed 0.5 m away, it liberates photoelectrons from a photosensitive metallic surface. When the source is moved to a distance of 1.0 m , the number of photoelectrons liberated will be reduced by a factor of

[AIPMT 2007]

- (1) 8
- (2) 16
- (3) 2
- (4) 4

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- Q.10** A photocell employs photoelectric effect to convert [AIPMT 2006]

- (1) change in the frequency of light into a change in the electric current
- (2) change in the frequency of light into a change in electric voltage
- (3) change in the intensity of illumination into a change in photoelectric current
- (4) change in the intensity of illumination into a change in the work function of the photocathode.

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- Q.11** A photoelectric cell is illuminated by a point source of light 1 m away. When the source is shifted to 2 m then [AIPMT 2003]

- (1) each emitted electron carries one quarter of the initial energy
- (2) number of electrons emitted is half the initial number
- (3) each emitted electron carries half the initial energy
- (4) number of electrons emitted is a quarter of the initial number

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- Q.12** When ultraviolet rays are incident on a metal plate, photoelectric effect does not occur. It occurs by incidence of [AIPMT 2002]

- (1) infrared rays
- (2) X-rays
- (3) radio waves
- (4) microwaves

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- Q.13** A photo-cell is illuminated by a source of light, which is placed at a distance d from the cell. If the distance becomes $d/2$, then number of electrons emitted per second, will be [AIPMT 2001]

- (1) remain same
- (2) four times
- (3) two times
- (4) one-fourth

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ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11
Ans.	2	3	3	2	4	2	2	1	4	3	4
Ques.	12	13									
Ans.	2	2									