

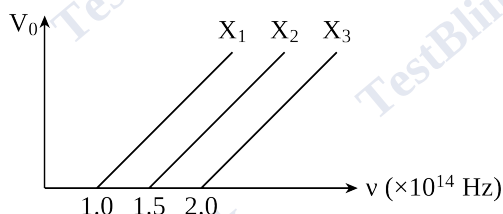
JEE MAIN DUAL NATURE OF RADIATION AND MATTER — PHOTOELECTRIC EFFECT: EXPERIMENTAL STUDY — PYQS

Max. Marks: 16
Questions: 4

Section A (MCQ) — 4 questions

- Q.1** The graph shows variation of stopping potential V_0 with the frequency ν of the incident radiation for three photosensitive metals X_1 , X_2 and X_3 . Which metal will give out electrons with greater kinetic energy, for the same wavelength of incident radiation?

[JEE Main 2026 (Online) 4th April Morning Shift]



- (1) X_1
- (2) X_2
- (3) X_3
- (4) All the metals will give out photoelectrons with same kinetic energies.

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- Q.2** Match the List-I with List-II

List-I		List-II	
A.	Planck's constant	I.	$M L^2 T^{-2}$
B.	Stopping potential	II.	T^{-1}
C.	Work function	III.	$M L^2 T^{-1}$
D.	Threshold frequency	IV.	$M L^2 T^{-3} A^{-1}$

Choose the correct answer from the options given below : [JEE Main 2026 (Online) 4th April Evening Shift]

- (1) A-III, B-IV, C-I, D-II (2) A-I, B-II, C-III, D-IV
(3) A-IV, B-III, C-I, D-II (4) A-I, B-IV, C-III, D-II

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- Q.3** Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**
Assertion (A): In photoelectric effect, on increasing the intensity of incident light the stopping potential increases.

Reason (R): Increase in intensity of light increases the rate of photoelectrons emitted, provided the frequency of incident light is greater than threshold

frequency.

In the light of the above statements, choose the correct answer from the options given below

[JEE Main 2025 (Online) 4th April Morning Shift]

- (1) Both A and R are true and R is the correct explanation of A
- (2) A is false but R is true
- (3) Both A and R are true but R is NOT the correct explanation of A
- (4) A is true but R is false

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- Q.4** Given below are two statements: one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A): Emission of electrons in photoelectric effect can be suppressed by applying a sufficiently negative electric potential to the photoemissive substance.

Reason (R): A negative electric potential, which stops the emission of electrons from the surface of a photoemissive substance, varies linearly with frequency of incident radiation.

In the light of the above statements, choose the most appropriate answer from the options given below :

[JEE Main 2025 (Online) 29th January Morning Shift]

- (1) Both (A) and (R) are true and (R) is the correct explanation of (A).
- (2) Both (A) and (R) are true but (R) is not the correct explanation of (A).
- (3) (A) is false but (R) is true
- (4) (A) is true but (R) is false

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ANSWER KEY

Ques.	1	2	3	4							
Ans.	1	1	2	2							