

PYQSide

JEE MAIN ATOMS — ATOMIC SPECTRA, SPECTRAL SERIES OF HYDROGEN — PYQS

Max. Marks: 20

Questions: 5

Section A (MCQ)

- Q.1** The ratio of momentum of the photons of the 1st and 2nd line of Balmer series of Hydrogen atoms is α/β . The possible values of α and β are :

[JEE Main 2026 (Online) 6th April Morning Shift]

- (1) 27 and 20 (2) 3 and 16
(3) 5 and 36 (4) 20 and 27

Scan or tap for the full solution



- Q.2** In the hydrogen atom, the electron makes a transition from the higher orbit (i) to a lower orbit (f). The ratio of the radius of the orbits is given by $r_i:r_f = 16:4$. The wavelength of photon emitted due to this transition is _____ nm.

(Given Rydberg constant = 1.0973×10^7 /m)

[JEE Main 2026 (Online) 5th April Morning Shift]

- (1) 121 (2) 242 (3) 486 (4) 974

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- Q.3** In hydrogen atom spectrum, ($R \rightarrow$ Rydberg's constant)

- A. the maximum wavelength of the radiation of Lyman series is $\frac{4}{3R}$
B. the Balmer series lies in the visible region of the spectrum
C. the minimum wavelength of the radiation of Paschen series is $\frac{9}{R}$
D. the minimum wavelength of Lyman series is $\frac{5}{4R}$
Choose the correct answer from the options given below :

[JEE Main 2026 (Online) 23rd January Morning Shift]

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

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- Q.4** The smallest wavelength of Lyman series is 91 nm. The difference between the largest wavelengths of Paschen and Balmer series is nearly _____ nm.

[JEE Main 2026 (Online) 22nd January Evening Shift]

- (1) 1784 (2) 1875 (3) 1217 (4) 1550

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- Q.5** For a hydrogen atom, the ratio of the largest wavelength of Lyman series to that of the Balmer series is [JEE Main 2025 (Online) 7th April Morning Shift]

- (1) 5:27 (2) 27:5 (3) 3:4 (4) 5:36

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ANSWER KEY

Ques.	1	2	3	4	5						
Ans.	4	3	4	3	1						