PYQSide PYQSide.com — free PYQs with solutions Powered by TestBlink

NEET ATOMS — ATOMIC SPECTRA, SPECTRAL SERIES OF HYDROGEN — PYQS

Max. Marks: 52 **Questions:** 13

Section A (MCQ) — 13 questions

Q.1 Match **List I** with **List II**:

List I (Spectral Lines of Hydrogen for transitions from)		List II (Wavelengths (nm))	
A.	$n_2 = 3$ to $n_1 = 2$	I.	410.2
B.	$n_2 = 4$ to $n_1 = 2$	II.	434.1
C.	$n_2 = 5$ to $n_1 = 2$	III.	656.3
D.	$n_2 = 6$ to $n_1 = 2$	IV.	486.1

Choose the correct answer from the options given below: [NEET (UG) 2024]

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

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

Scan or tap for the full solution

Q.2 The spectral series which corresponds to the electronic transition from the levels $n_2 = 5, 6, \ldots$ to the level $n_1 = 4$ is [RE-NEET (UG) 2024]

(1) Pfund series (2) Brackett series

(3) Lyman series (4) Balmer series

Scan or tap for the full solution

Q.3 In hydrogen spectrum, the shortest wavelength in the Balmer series is λ. The shortest wavelength in the Brackett series is : [NEET (UG) 2023]

(1) 4λ (2) 9λ (3) 16λ (4) 2λ

Scan or tap for the full solution

Q.4 The ratio of wavelengths of the last line of Balmer series and the last line of Lyman series is [NEET 2017]

(1) 1 (2) 4 (3) 0.5 (4) 2

Scan or tap for the full solution

Q.5 Given the value of Rydberg constant is $10^7\ m^{-1}$, the wave number of the last line of the Balmer series in hydrogen spectrum will be [NEET 2016 (Phase 1)]

(1) $0.25 \times 10^7\ m^{-1}$ (2) $2.5 \times 10^7\ m^{-1}$

(3) $0.025 \times 10^4\ m^{-1}$ (4) $0.5 \times 10^7\ m^{-1}$

Scan or tap for the full solution

Q.6 If an electron in a hydrogen atom jumps from the 3rd orbit to the 2nd orbit, it emits a photon of wavelength λ. When it jumps from the 4th orbit to the 3rd orbit, the corresponding wavelength of the photon will be [NEET 2016 (Phase 2)]

(1) $\frac{16}{25}\lambda$ (2) $\frac{9}{16}\lambda$ (3) $\frac{20}{7}\lambda$ (4) $\frac{20}{13}\lambda$

Scan or tap for the full solution

Q.7 In the spectrum of hydrogen, the ratio of the longest wavelength in the Lyman series to the longest wavelength in the Balmer series is [AIPMT 2015]

(1) $\frac{27}{5}$ (2) $\frac{5}{27}$ (3) $\frac{4}{9}$ (4) $\frac{9}{4}$

Scan or tap for the full solution

Q.8 Ratio of longest wave lengths corresponding to Lyman and Balmer series in hydrogen spectrum is [NEET 2013]

(1) $\frac{7}{29}$ (2) $\frac{9}{31}$ (3) $\frac{5}{27}$ (4) $\frac{3}{23}$

Scan or tap for the full solution

Q.9 The transition from the state n = 3 to n = 1 in a hydrogen like atom results in ultraviolet radiation. Infrared radiation will be obtained in the transition from [AIPMT 2012 (Mains)]

(1) $2 \longrightarrow 1$ (2) $3 \longrightarrow 2$

(3) $4 \longrightarrow 2$ (4) $4 \longrightarrow 3$

Scan or tap for the full solution

Q.10 Electron in hydrogen atom first jumps from third excited state to second excited state and then from second excited to the first excited state. The ratio of the wavelengths $\lambda_1:\lambda_2$ emitted in the two cases is [AIPMT 2012 (Prelims)]

(1) $\frac{7}{5}$ (2) $\frac{27}{20}$ (3) $\frac{27}{5}$ (4) $\frac{20}{7}$

Scan or tap for the full solution

Q.11 The wavelength of the first line of Lyman series for hydrogen atom is equal to that of the second line of Balmer series for a hydrogen-like ion. The atomic number Z of hydrogen-like ion is

[AIPMT 2011 (Prelims)]

(1) 3 (2) 4 (3) 1 (4) 2

Scan or tap for the full solution

Q.12 In the phenomenon of electric discharge through gases at low pressure, the coloured glow in the tube appears as a result of [AIPMT 2008]

(1) collisions between the charged particles emitted from the cathode and the atoms of the gas

(2) collision between different electrons of the atoms of the gas

(3) excitation of electrons in the atoms

(4) collision between the atoms of the gas

Scan or tap for the full solution

Q.13 When an electron makes a transition from n = 4 to n = 2, then the emitted line spectrum will be

[AIPMT 2000]

(1) first line of Lyman series

(2) second line of Balmer series

(3) first line of Balmer series

(4) second line of Paschen series

Scan or tap for the full solution

ANSWER KEY

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