

PYQSide

NEET ATOMS — ENERGY LEVELS AND LINE SPECTRA — PYQS

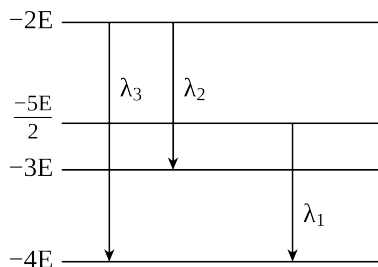
Max. Marks: 36

Questions: 9

Section A (MCQ)

- Q.1** Some energy levels of a molecule are shown in the figure with their wavelengths of transitions. Then :

[RE-NEET (UG) 2024]



- (1) $\lambda_3 > \lambda_2$, $\lambda_1 = 2\lambda_2$ (2) $\lambda_3 > \lambda_2$, $\lambda_1 = 4\lambda_2$
 (3) $\lambda_1 > \lambda_2$, $\lambda_2 = 2\lambda_3$ (4) $\lambda_2 > \lambda_1$, $\lambda_2 = 2\lambda_3$

Scan or tap for the full solution



- Q.2** Hydrogen atom in ground state is excited by a monochromatic radiation of $\lambda = 975 \text{ \AA}$. Number of spectral lines in the resulting spectrum emitted will be

[AIPMT 2014]

- (1) 3 (2) 2 (3) 6 (4) 10

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- Q.3** An electron of a stationary hydrogen atom passes from the fifth energy level to the ground level. The velocity that the atom acquired as a result of photon emission will be

[AIPMT 2012 (Prelims)]

- (1) $\frac{24hR}{25m}$ (2) $\frac{25hR}{24m}$ (3) $\frac{25m}{24hR}$ (4) $\frac{24m}{25hR}$

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- Q.4** An electron in the hydrogen atom jumps from excited state n to the ground state. The wavelength so emitted illuminates a photosensitive material having work function 2.75 eV . If the stopping potential of the photoelectron is 10 V , then the value of n is

[AIPMT 2011 (Mains)]

- (1) 2 (2) 3 (3) 4 (4) 5

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- Q.5** Out of the following which one is not a possible energy for a photon to be emitted by hydrogen atom according to Bohr's atomic model?

[AIPMT 2011 (Mains)]

- (1) 0.65 eV (2) 1.9 eV (3) 11.1 eV (4) 13.6 eV

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- Q.6** The ionization energy of the electron in the hydrogen atom in its ground state is 13.6 eV . The atoms are excited to higher energy levels to emit radiations of 6 wavelengths. Maximum wavelength of emitted radiation corresponds to the transition between

[AIPMT 2009]

- (1) $n = 3$ to $n = 1$ states (2) $n = 2$ to $n = 1$ states
 (3) $n = 4$ to $n = 3$ states (4) $n = 3$ to $n = 2$ states

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- Q.7** Ionization potential of hydrogen atom is 13.6 eV . Hydrogen atoms in the ground state are excited by monochromatic radiation of photon energy 12.1 eV . According to Bohr's theory, the spectral lines emitted by hydrogen will be

[AIPMT 2006]

- (1) one (2) two (3) three (4) four

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- Q.8** Energy levels A, B and C of a certain atom corresponding to increasing values of energy i.e. $E_A < E_B < E_C$. If λ_1 , λ_2 and λ_3 are wavelengths of radiations corresponding to transitions C to B, B to A and C to A respectively, which of the following relations is correct?

[AIPMT 2005]

- (1) $\lambda_3 = \lambda_1 + \lambda_2$ (2) $\lambda_3 = \frac{\lambda_1 \lambda_2}{\lambda_1 + \lambda_2}$
 (3) $\lambda_1 + \lambda_2 + \lambda_3 = 0$ (4) $\lambda_3^2 = \lambda_1^2 + \lambda_2^2$

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- Q.9** Maximum frequency of emission is obtained for the transition

[AIPMT 2000]

- (1) $n = 2$ to $n = 1$ (2) $n = 6$ to $n = 2$
 (3) $n = 1$ to $n = 2$ (4) $n = 2$ to $n = 6$

Scan or tap for the full solution



ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9		
Ans.	4	3	1	3	3	3	3	2	1		