

JEE MAIN STRUCTURE OF ATOM — ENERGIES OF ORBITALS — PYQS

Max. Marks: 24

Questions: 6

Section A (MCQ) — 6 questions

Q.1 Arrange the following atomic orbitals of multi electron atoms in order of increasing energy.

- A. $n = 3, l = 2, m = +1$ B. $n = 4, l = 0, m = 0$
 C. $n = 6, l = 1, m = 0$ D. $n = 5, l = 1, m = +1$
 E. $n = 2, l = 1, m = +1$

Choose the correct answer from the options given below: [JEE Main 2026 (Online) 5th April Morning Shift]

- (1) $C < D < B < A < E$ (2) $B < A < E < C < D$
 (3) $E < C < D < B < A$ (4) $E < B < A < D < C$

Scan or tap for the
full solution



Q.2 Which of the following statement(s) is/are true ?

- A. If two orbitals have the same value of $(n + l)$, the orbital with lower value of n will have lower energy.
 B. Energies of the orbitals in the same subshell increase with increase in atomic number.
 C. The size of $2p_x$ orbital is less than the size of $3p_x$ orbital.
 D. Among $5f$, $6s$, $4d$, $5p$ and $5d$ orbitals, none of the orbitals have 2 radial nodes.

Choose the correct answer from the options given below: [JEE Main 2026 (Online) 5th April Evening Shift]

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

Scan or tap for the
full solution



Q.3 In a multielectron atom, which of the following orbitals described by three quantum numbers will have same energy in absence of electric and magnetic fields?

- A. $n = 1, l = 0, m_l = 0$ B. $n = 2, l = 0, m_l = 0$
 C. $n = 2, l = 1, m_l = 1$ D. $n = 3, l = 2, m_l = 1$
 E. $n = 3, l = 2, m_l = 0$

Choose the correct answer from the options given below:

[JEE Main 2025 (Online) 28th January Morning Shift]

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

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full solution



Q.4 Which of the following is/are not correct with respect to energy of atomic orbitals of hydrogen atom?

- A. $1s < 2p < 3d < 4s$
 B. $1s < 2s = 2p < 3s = 3p$
 C. $1s < 2s < 2p < 3s < 3p$
 D. $1s < 2s < 4s < 3d$

Choose the **correct** answer from the options given below :

[JEE Main 2025 (Online) 28th January Evening Shift]

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

Scan or tap for the
full solution



Q.5 For hydrogen atom, the orbital/s with lowest energy is/are :

- A. $4s$ B. $3p_x$
 C. $3d_{x^2-y^2}$ D. $3d_{z^2}$
 E. $4p_z$

Choose the correct answer from the options given below :

[JEE Main 2025 (Online) 24th January Evening Shift]

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

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Q.6 Given below are two statements :

Statement-I: A spectral line will be observed for a $2p_x \rightarrow 2p_y$ transition.

Statement-II: $2p_x$ and $2p_y$ are degenerate orbitals.

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

[JEE Main 2025 (Online) 22nd January Evening Shift]

- (1) Statement-I is false but Statement-II is true
 (2) Both Statement-I and Statement-II are false
 (3) Statement-I is true but Statement-II is false
 (4) Both Statement-I and Statement-II are true

Scan or tap for the
full solution



ANSWER KEY

Ques.	1	2	3	4	5	6					
Ans.	4	2	4	4	3	1					