

Structure of Atom

NEET previous year questions · Chemistry

4 questions from the official papers: NEET 2026 (2), Re-NEET 2026 (1), NEET 2020 (1). Each is followed by its answer and a worked solution written by BrainIt. Generated on 23 October 2026.



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1. NEET 2026 · Q49

Match List I (Quantum Numbers, given as n and l) with List II (Orbital):

List I	List II
P) $n = 2, l = 1$	I) 3d
Q) $n = 4, l = 0$	II) 2p
R) $n = 5, l = 3$	III) 4s
S) $n = 3, l = 2$	IV) 5f

- (1) P-IV, Q-II, R-III, S-I (2) P-II, Q-III, R-I, S-IV
(3) P-II, Q-III, R-IV, S-I (4) P-I, Q-II, R-III, S-IV

Answer (3)

Sol. The orbital is named by n and the subshell letter for l ($l = 0, 1, 2, 3 \rightarrow s, p, d, f$). So $n=2, l=1$ is 2p (II); $n=4, l=0$ is 4s (III); $n=5, l=3$ is 5f (IV); $n=3, l=2$ is 3d (I). This gives P-II, Q-III, R-IV, S-I.

2. NEET 2026 · Q56

A bulb is rated at 150 watt, converting 8% energy into light. If energy of one photon is 4.42×10^{-19} J, how many photons are emitted by the bulb per second?

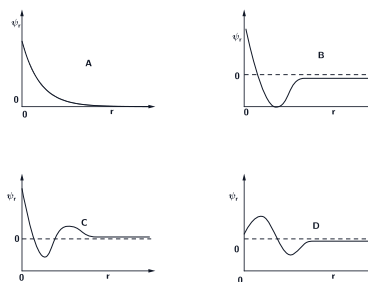
- (1) 2.71×10^{19} (2) 4.06×10^{19}
(3) 27.2×10^{19} (4) 1.35×10^{19}

Answer (1)

Sol. In one second the bulb consumes 150 J; only 8% becomes light, so light energy per second = $150 \times 0.08 = 12$ J. The number of photons $n = (\text{light energy})/(\text{energy per photon}) = 12/(4.42 \times 10^{-19}) \approx 2.71 \times 10^{19}$. The other options come from omitting the 8% factor or arithmetic errors.

3. Re-NEET 2026 · Q88

Consider the following schematic plots of orbital wavefunction (ψ_r) against distance (r) from the nucleus.



The figure representing two radial nodes in the orbital is

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

Answer (3)

Sol. A radial node is a distance at which the wavefunction actually CHANGES SIGN, so on a ψ_r versus r plot you simply count how many times the curve crosses the horizontal axis. Merely approaching zero asymptotically at large r does not count. The plot labelled C crosses the axis twice - once into negative values and once back up - so it has two radial nodes, matching an orbital with $n - l - 1 = 2$ such as 3s. NCERT Class 11, Structure of Atom (quantum mechanical model, nodes).

Why the other options are wrong:

- (1) shows a curve that decays without ever changing sign - zero radial nodes, as in 1s
- (2) crosses the axis only once, so it has a single radial node
- (4) crosses more often than twice, so its node count is higher than asked for

4. NEET 2020 · Q110

The number of protons, neutrons and electrons in ${}^{175}_{71}\text{Lu}$, respectively, are

- (1) 104, 71 and 71 (2) 71, 71 and 104
(3) 175, 104 and 71 (4) 71, 104 and 71

Answer (4)

Sol. The atomic number (71) gives the number of protons and electrons, and the mass number (175) minus the atomic number gives the number of neutrons: $175 - 71 = 104$. Chapter: Structure of Atom.

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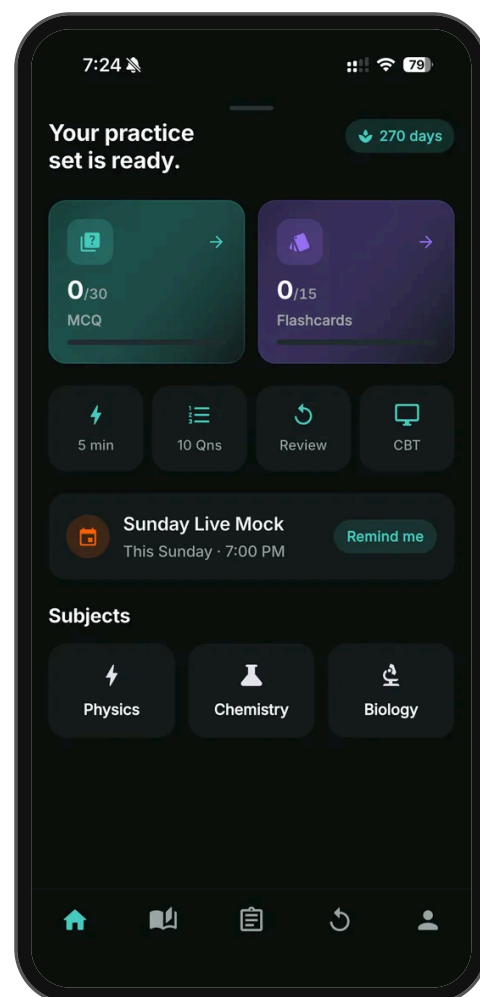
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