



Daily Article (Bharath's Reading list) - Answers and Explanations 19.09.2023

Article link : <https://bit.ly/3Lv0trH> (We are not empty)

1. Based on the article, which of the following is incorrect?

- A. Electrons do not vibrate, spin or orbit
- B. Nuclei and electrons inhabit a motionless microcosmos where time only occasionally plays a role
- C. Electrons are delocalised clouds; they are the orbitals
- D. The atomic mass is not highly localised

Explanation : D

Note the lines, 'The atomic mass is indeed highly localised. In an ammonia molecule, 82 per cent of the mass is in the blue smudge of the nitrogen nucleus shown in Figure 1 above. If we add the masses of the three green proton clouds, they account for 99.97 per cent of the total.

2. Which of the following properties is key to molecules forming?

- A. The Heisenberg uncertainty principle, which implies that electrons cannot glue to a nucleus
- B. The Pauli exclusion principle, according to which two identical fermions such as electrons, quarks, protons and neutrons cannot simultaneously occupy the same space and have the same spin
- C. Both the above
- D. None of these

Explanation: C

In the article, both quantum properties given are stated as key to molecules forming.

3. Based on the article, which of the following is not true about the wave function in the quantum world?

- A. The wave function gives the probability of finding the particle at each point in space if we attempt to observe it
- B. The wave function represents more than a mere lack of knowledge, as delocalised systems cause phenomena that localised particles cannot explain
- C. The wave function helps present an account of the quantum molecular world that is highly controversial among specialists
- D. None of the above

Explanation: C

Refer to the lines, 'The account of the quantum molecular world I presented is on comfortably safe grounds. It is based on a quantum theory domain that is highly consensual among specialists.'