

Conceptual Physics Atomic Nature of Matter Practice Exam**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

- _____ 1. There are slightly more than 100 known atoms that combine to form all living and nonliving matter that we know about. These atoms are called _____.
- isotopes
 - nucleons
 - molecules
 - ions
 - elements
- _____ 2. Keep heating a gas and you'll have a _____.
- liquid
 - plasma
 - both A and B
 - neither A nor B
- _____ 3. Which of the following atoms is the lightest?
- Lead
 - Iron
 - Hydrogen
 - Uranium
 - All have the same mass
- _____ 4. Atoms are _____.
- smaller than the wavelength of visible light
 - small, but you can see them with an optical microscope
 - so small that we can only postulate their existence
 - seen only through a microscope looking through another microscope
 - so small that we can never see them, even with an electron microscope
- _____ 5. If two protons are removed from an oxygen nucleus, the result is _____.
- carbon
 - neon
 - nitrogen
 - helium
 - none of the above
- _____ 6. What normally determines whether a substance is a liquid, solid, gas, or plasma?
- The atomic mass of the atoms involved
 - The density of the substance
 - The atomic number of the atoms involved
 - The temperature of the substance
 - none of the above

- _____ 7. What makes an element distinct?
- The number of neutrons
 - The number of electrons
 - The number of protons
 - The total mass of all the particles
 - none of the above
- _____ 8. How many different elements are in a water molecule?
- Three
 - One
 - Two
 - Four
 - none of the above
- _____ 9. Elements that are above or below each other in the periodic table have one more or one less _____.
- electron shell
 - proton
 - nucleon
 - isotope
 - ion
- _____ 10. In an electrically neutral atom, the number of protons in the nucleus is balanced by an equal number of _____.
- neutrons
 - electrons
 - pions
 - all of the above
 - none of the above
- _____ 11. What is the most abundant element in the known universe?
- Nitrogen
 - Oxygen
 - Hydrogen
 - Carbon
 - Water
- _____ 12. Brownian motion has to do with _____.
- atomic vibrations
 - the first direct measurement of electron energy levels
 - the size of atoms
 - random motions of atoms and molecules
 - rhythmic movements of Brownians
- _____ 13. At the center of every atom is a mass-filled region called the _____.
- ion
 - nucleus
 - nucleon
 - neutron
 - proton