

This is BCE#4.

I recommend you print out this page and bring it to class. [Click here](#) to show a set of five BCE4 student responses randomly selected from all of the student responses thus far in a new window.

john , here are your responses to the BCE and the Expert's response.

1. In the following table listing the three important subatomic particles complete the missing information. (See Table 2.1 on page 56 in Tro.)

Subatomic Particle	Symbol	Charge (magnitude and units)	Mass (magnitude and units)
Proton	p ⁺	<p><i>2% negative charge</i> magnitude = 1.60e-19 coulombs (units) +1.602 x 10⁻¹⁹ coulombs (C) <i>50%</i> +1 esu (electrostatic units) <i>20%</i> <i>19% CNA, +, -, positive</i></p>	<p>magnitude = 1.673e-27 kg (units) 1.673 x 10⁻²⁴ grams <i>47%</i> 1.0073 amu <i>32%</i> <i>15% CNA</i></p>
Neutron	n ⁰	<p>magnitude = 0 (units) 0 coulombs (C) <i>77%</i> 0 esu (electrostatic units) <i>no charge</i> <i>10% CNA or blank</i> <i>neutral</i></p>	<p>magnitude = 1.675e-27 kg (units) 1.675 x 10⁻²⁴ grams <i>47%</i> 1.0087 amu <i>29%</i> <i>16% CNA, blank</i></p>
Electron	e ⁻	<p>magnitude = -1.60e-19 coulombs (units) - 1.602 x 10⁻¹⁹ coulombs (C) - 1 esu (electrostatic units)</p>	<p>magnitude = 9.1e-31 kg (units) 9.10 x 10⁻²⁸ grams 5.486 x 10⁻⁴ amu</p>

2. Briefly describe the location of each sub atomic particle.

protons and neutrons make up the nucleus and electrons are located outside/away from the nucleus

The protons and neutrons combine to form the nucleus located in the center of the atom. The electrons are located around the nucleus.

3. Describe the motion of the electron in an atom.

the motion of the electron can best be described as a wave. Electrons have regions of high probability where they are likely to be found.

The electrons are located around the nucleus. The path is not defined because the best way to describe the behavior of the electron is as a wave, not as a particle. So instead of thinking of an electron orbiting the nucleus, we think of an electron as existing in a 3-dimensional region of space called an orbital. We think of the probability of finding the electron in an orbital.

4. The following notation is frequently used to represent an atom



A is the mass number (number of protons plus neutrons)

Z is the atomic number (number of protons)

X is the symbol for the element

charge is the charge (number of protons plus electrons)

Based on this definition indicate the number of each of the subatomic particles in the following atoms/ions.

atomic notation	protons	neutrons	electrons	charge
${}^6_{12}\text{C}$	6 6 97%	6 6 97%	2% = 12 6 9% 0 3% = 6 6 78%	5% 12 0 0 81%
${}^{35}_{17}\text{Cl}^{-1}$	26% 17 18 17 95%	6% 17 18 63% 35 18 89%	29% 17 18 37% 16 18 3% 18 2% 19 55%	-1 10% negative -1 81%
${}^{39}_{19}\text{K}^{+1}$	4% 19 20 19 93%	1% 10 20 20 88%	3% 18 18 25% 3% 0 18 19 3% 1 52% 4% 20	+1 9% positive +1 79%

5. Is there anything about the questions that you feel you do not understand? List your concerns/questions.

nothing

6. If there is one question you would like to have answered in lecture, what would that question be?

nothing