Assignment #6: Subatomic Particles Regents Questions

1.) The atomic number of an atom is always equal to the number of its
(1) protons, only  (3) protons plus neutrons
(2) neutrons, only  (4) protons plus electrons

2.) Which subatomic particle has no charge?
(1) alpha particle  (3) neutron
(2) beta particle  (4) electron

3.) Which particles are found in the nucleus of an atom?
(1) electrons, only  (3) protons and electrons
(2) neutrons, only  (4) protons and neutrons

4.) What is the total number of neutrons in an atom of an element that has a mass number of 19 and an atomic number of 9?
(1) 9  (3) 19
(2) 10  (4) 28

\[
19 = p^+ + n^0 \\
9 = p^+ \\
\text{so } n^0 = 10
\]

5.) A neutral atom contains 12 neutrons and 11 electrons. The number of protons in this atom is
(1) 1  (3) 12
(2) 11  (4) 23

\[ p^+ \text{ have to match } \# \text{ of } e^- \]

6.) Which statement is true about the charges assigned to an electron and a proton?
(1) Both an electron and a proton are positive.
(2) An electron is positive and a proton is negative.
(3) An electron is negative and a proton is positive.
(4) Both an electron and a proton are negative.

7.) Which statement is true about a proton and an electron?
(1) They have the same masses and the same charges.
(2) They have the same masses and different charges.
(3) They have different masses and the same charges.
(4) They have different masses and different charges.

8.) Which statement concerning elements is true?
(1) Different elements must have different numbers of isotopes.
(2) Different elements must have different numbers of neutrons.
(3) All atoms of a given element must have the same mass number.
(4) All atoms of a given element must have the same atomic number.

\[ \text{atomic # defines the element} \]
9.) What is the total number of electrons found in an atom of sulfur?
   (1) 6  
   (2) 8  
   (3) 16  
   (4) 32

10.) Which subatomic particle will be attracted by a positively charged object?
   (1) proton  
   (2) neutron  
   (3) electron  
   (4) positron

11.) Which two particles have approximately the same mass?
   (1) proton and neutron  
   (2) proton and electron  
   (3) neutron and electron  
   (4) neutron and positron

12.) What is the total number of neutrons in the nucleus of a neutral atom that has 19 electrons and a mass number of 39?
   (1) 19  
   (2) 20  
   (3) 39  
   (4) 58

13.) Which statement about one atom of an element identifies the element?
   (1) The atom has 1 proton.
   (2) The atom has 2 neutrons.
   (3) The sum of the number of protons and neutrons in the atom is 3.
   (4) The difference between the number of neutrons and protons in the atom is 1

14.) Which particles have approximately the same mass?
   (1) an electron and an alpha particle  
   (2) an electron and a proton  
   (3) a neutron and an alpha particle
   (4) a neutron and a proton

15.) What is the charge of the nucleus of an oxygen atom?
   (1) 0  
   (2) -2  
   (3) +8  
   (4) +16