

## Additional Atomic Review

- \_\_\_\_\_ 1. Which particle has the *least* mass?
- 1) a proton                      2) an electron  
3) a helium atom              4) a hydrogen atom
- \_\_\_\_\_ 2. Which statement describes the structure of an atom?
- 1) The nucleus contains positively charged electrons.  
2) The nucleus contains negatively charged protons.  
3) The nucleus has a positive charge and is surrounded by negatively charged electrons.  
4) The nucleus has a negative charge and is surrounded by positively charged electrons.
- \_\_\_\_\_ 3. Which statement describes the distribution of charge in an atom?
- 1) A neutral nucleus is surrounded by one or more negatively charged electrons.  
2) A neutral nucleus is surrounded by one or more positively charged electrons.  
3) A positively charged nucleus is surrounded by one or more negatively charged electrons.  
4) A positively charged nucleus is surrounded by one or more positively charged electrons.
- \_\_\_\_\_ 4. Which conclusion was a direct result of the gold foil experiment?
- 1) An atom is mostly empty space with a dense, positively charged nucleus.  
2) An atom is composed of at least three types of subatomic particles.  
3) An electron has a positive charge and is located inside the nucleus.  
4) An electron has properties of both waves and particles.
- \_\_\_\_\_ 5. On the Periodic Table, the number of protons in an atom of an element is indicated by its
- 1) atomic mass  
2) atomic number  
3) selected oxidation states  
4) number of valence electrons
- \_\_\_\_\_ 6. Which quantity represents the number of protons in an atom?
- 1) atomic number  
2) oxidation number  
3) number of neutrons  
4) number of valence electrons
- \_\_\_\_\_ 7. The notation for the nuclide  $^{137}_{55}\text{Cs}$  gives information about
- 1) mass number, only  
2) atomic number, only  
3) both mass number and atomic number  
4) neither mass number nor atomic number
- \_\_\_\_\_ 8. In an atom of argon-40, the number of protons
- 1) equals the number of electrons  
2) equals the number of neutrons  
3) is less than the number of electrons  
4) is greater than the number of electrons
- \_\_\_\_\_ 9. An atom that contains six protons, six neutrons, and six electrons has a mass of approximately
- 1) 12 u   2) 12 g   3) 18 u   4) 18 g
- \_\_\_\_\_ 10. The atomic mass of an element is the weighted average of the atomic masses of
- 1) the least abundant isotopes of the element  
2) the naturally occurring isotopes of the element  
3) the artificially produced isotopes of the element  
4) the natural and artificial isotopes of the element
- \_\_\_\_\_ 11. An atom that has 13 protons and 15 neutrons is an isotope of the element
- 1) nickel                      2) silicon  
3) aluminum                4) phosphorus
- \_\_\_\_\_ 12. Which two notations represent isotopes of the same element?
- 1)  $^{14}_7\text{N}$  and  $^{18}_7\text{N}$       2)  $^{20}_7\text{N}$  and  $^{20}_{10}\text{Ne}$   
3)  $^{14}_7\text{N}$  and  $^{17}_{10}\text{Ne}$       4)  $^{19}_7\text{N}$  and  $^{16}_{10}\text{Ne}$

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| <p>_____ 13. The atomic mass of titanium is 47.88 atomic mass units. This atomic mass represents the</p> <ul style="list-style-type: none"><li>1) total mass of all the protons and neutrons in an atom of Ti</li><li>2) total mass of all the protons, neutrons, and electrons in an atom of Ti</li><li>3) weighted average mass of the most abundant isotope of Ti</li><li>4) weighted average mass of all the naturally occurring isotopes of Ti</li></ul> <p>_____ 14. An orbital is defined as a region of the most probable location of</p> <ul style="list-style-type: none"><li>1) an electron                      2) a neutron</li><li>3) a nucleus                        4) a proton</li></ul> <p>_____ 15. Which electron configuration represents the electrons of an atom of neon in an excited state?</p> <ul style="list-style-type: none"><li>1) 2-7    2) 2-8    3) 2-7-1   4) 2-8-1</li></ul> | <p>_____ 16. Which electron transition in an excited atom results in a release of energy?</p> <ul style="list-style-type: none"><li>1) first shell to the third shell</li><li>2) second shell to the fourth shell</li><li>3) third shell to the fourth shell</li><li>4) fourth shell to the second shell</li></ul> <p>_____ 17. According to the wave-mechanical model, an orbital is defined as the</p> <ul style="list-style-type: none"><li>1) circular path for electrons</li><li>2) circular path for neutrons</li><li>3) most probable location of electrons</li><li>4) most probable location of neutrons</li></ul> <p>_____ 18. What is the number of electrons in an atom of scandium?</p> <ul style="list-style-type: none"><li>1) 21    2) 24    3) 45    4) 66</li></ul> |
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