HOME WORK 4
CHEM 1305 - CHAPTER 4

Name_____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) According to the Thomson model, what is the simplest positive particle in an atom? 1) _____
A) neutron
B) proton
C) alpha
D) electron
E) none of the above

2) Which of the following subatomic particles are found inside the nucleus? 2) _____
A) neutron and proton
B) electron and neutron
C) proton and electron
D) all of the above
E) none of the above

3) Using atomic notation, indicate the isotope having 11 p^+, 12 n^0, and 11 e^-. 3) _____
A) $^{12}_{11}Na$ B) $^{23}_{11}Na$ C) $^{12}_{11}Mg$ D) $^{23}_{12}Na$ E) $^{23}_{12}Mg$

4) How many neutrons are in the nucleus of an atom of $^{18}_{8}O$? 4) _____
A) 10
B) 26
C) 8
D) 18
E) none of the above

5) How many neutrons are in the nucleus of an atom of copper-65? 5) _____
A) 94
B) 65
C) 36
D) 29
E) none of the above

6) Given that the only naturally occurring isotope of sodium is ^{23}Na, what is its isotopic mass? (Hint: Refer to the Periodic Table.) 6) _____
A) 11.00 amu B) 11.99 amu C) 34.99 amu D) 12.00 amu E) 22.99 amu

7) Copper occurs naturally as ^{63}Cu and ^{65}Cu. Which isotope is more abundant? (Hint: Refer to the Periodic Table.) 7) _____

A) copper–36
B) copper–34
C) copper–65
D) copper–63
E) none of the above

8) Which of the following types of radiation has the longest wavelength? 8) _____

A) ultraviolet
B) visible
C) infrared
D) X rays
E) All radiation has the same wavelength.

9) What is the maximum number of electrons that can occupy a *d* energy sublevel? 9) _____

A) 10
B) 14
C) 2
D) 6
E) none of the above

10) What is the electron configuration for an atom of nickel? 10) _____

A) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 3d^8$
B) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^8$
C) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 4p^8$
D) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 4d^8$
E) none of the above

11) Which element has the following electron configuration: $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 3d^{10}\ 4p^6\ 5s^2$? 11) _____

A) Sn
B) Ca
C) Rb
D) Sr
E) none of the above

12) Which of the following is true of an electron orbit? 12) _____

A) An electron orbit may contain eight electrons.
B) An electron orbit is a fixed energy state.
C) An electron orbit increases in size with greater energy.
D) An electron orbit represents an energy level.
E) all of the above

13) Which of the following orbitals is the largest in size? 13) _____

A) 3*s*
B) 4*s*
C) 1*s*
D) 2*s*
E) all *s* orbitals are the same size

14) How many orbitals are in the 4*p* subshell? 14) _____

A) 1
B) 4
C) 5
D) 3
E) none of the above

15) Which of the following wavelengths has the lowest velocity? 15) _____

A) 440 nm
B) 650 nm
C) 470 nm
D) 540 nm
E) All wavelengths have the same velocity.