Chemistry G11-Q2W7-Quarter 2-Summary- H.W

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

____ 1. Active metals are in the _____ region of the periodic table.
a. *s*
b. *p*
c. *f*
d. *d*

____ 2. Compared to the neutral atom from which it is derived, a negative ion is _____.
a. always larger
b. larger in some cases and smaller in others
c. always smaller
d. the same size

____ 3. The inner transition elements are found in the _____ block of the periodic table.
a. *f*
b. *p*
c. *d*
d. *s*

____ 4. Electron 1 falls from energy level four to energy level two. Electron 2 falls from energy level three to energy level two. Which electron is more likely to emit red light?
a. 1
b. 2
c. Neither electron could emit red light.
d. Both electrons emit red light.

____ 5. Transition metals have multiple oxidation states because of the involvement of the _____ electrons in chemical bonding.
a. *p*
b. *s*
c. *f*
d. *d*

____ 6. In general, main group elements have _____ melting points and boiling points when compared with transition metals.
a. higher
b. the same
c. slightly lower
d. much lower

____ 7. Which of the following elements is not in the iron triad?
a. nickel
b. iron
c. cobalt
d. copper

____ 8. A *p* orbital has a _____ shape.
a. dumbbell
b. circular
c. spherical
d. doughnut

____ 9. When compared to the main group metals, transition metals have melting and boiling points that are _____.
a. usually higher
b. about the same
c. always lower
d. usually lower

____ 10. Light is released when an electron moves from higher energy levels to a lower energy level. The resulting spectrum is a(n) _____ spectrum.
a. absorption
b. emission
c. lower energy
d. excitation

____ 11. Plants need the alkaline earth element _____ in photosynthesis.
a. strontium
b. magnesium
c. calcium
d. barium

____ 12. Transition elements, such as chromium, are likely to have _____.
a. an oxidation number of 2+
b. an oxidation number of 1+
c. a negative oxidation number
d. multiple oxidation numbers

____ 13. Alkaline earth metals lose _____ electrons to achieve the electron configuration of the noble gas in the preceding period.
a. two
b. six
c. seven
d. one

____ 14. Alloys of magnesium are commonly used because they are _____.
a. strong and rigid
b. heavy and strong
c. reactive
d. lightweight and strong

____ 15. Most transition metals have _____ oxidation state(s).
a. multiple
b. two
c. no
d. only one

____ 16. Group 13 elements tend to form _____.
a. metalloids
b. alloys
c. covalent compounds
d. ionic compounds

____ 17. The conclusion that it's impossible to measure accurately both the position and the energy of an electron at the same time was made by _____.
a. Bohr
b. Proust
c. Heisenberg
d. Dalton

____ 18. Compare the maximum number of electrons possible in sublevel 3*d* with the maximum number that could be in sublevel 4*d*.
a. They are impossible to compare.
b. There are more in 4*d*.
c. They are the same.
d. There are more in 3*d*.

____ 19. Because of its ability to bond with oxygen, _____ is an essential element in the hemoglobin in blood.
a. manganese
b. tin
c. copper
d. iron

____ 20. The valence configuration shared by carbon, silicon, and germanium is _____.
a. s^2p^2
b. s^2p^4
c. $1s^22s^22p^2$
d. $2s^22p^6$

____ 21. If a wave has a high frequency, it also has _____.
a. low wavelength and high energy
b. low wavelength and low energy
c. high wavelength and high energy
d. high wavelength and low energy

____ 22. In going from left to right in any given row in the periodic table, the size of atoms generally _____.
a. changes randomly
b. increases
c. stays the same
d. decreases

____ 23. Transition elements have final electrons in the _____ sublevel.
a. *p*
b. *f*
c. *d*
d. *s*

____ 24. Which is a possible last sublevel for an element found in Group 18?
a. $4p^3$
b. $4d^8$
c. $3p^6$
d. $4s^2$

____ 25. Bromine is a typical nonmetal. A bromide ion is _____ a bromine atom.
a. impossible to compare with
b. smaller than
c. larger than
d. the same size as

____ 26. Which of the following elements is not a coinage metal?
a. silver
b. copper
c. gold
d. platinum

____ 27. If an atom contains six energy levels, how many sublevels does it contain?
a. four
b. one
c. two
d. six

____ 28. An element is most likely to have properties similar to those of _____.
a. another element in the same period
b. another element in the same group
c. a noble gas
d. a transition element

____ 29. What are the valence electrons in the electron configuration of tin, [Kr]$4d^{10}5s^25p^2$?
a. $5p^2$
b. $5s^25p^2$
c. [Kr]
d. $4d^{10}$

____ 30. The most unreactive group of elements is the _____.
a. alkali metals
b. halogens
c. transition elements
d. noble gases

____ 31. Which of the following orbitals is closest to the nucleus?
a. 2*p*
b. 3*d*
c. 4*s*
d. 1*s*

____ 32. An atom is in Group 2, Period 3. How many electrons does the atom contain?
a. 6
b. 3
c. 2
d. 12

____ 33. Because transition metals have similar atomic radii, transition metals have _____ chemical properties.
a. definitely different
b. no
c. identical
d. similar

____ 34. The most important use of lead is in _____.
a. paint pigment
b. pewter
c. batteries
d. solder

____ 35. What is the highest occupied sublevel in the structure of an atom of arsenic?
a. 3*s*
b. 3*p*
c. 4*p*
d. 3*d*

____ 36. The most important alloy of zinc contains copper and is called _____.
a. zinc oxide
b. steel
c. brass
d. slag

____ 37. Ionic radii _____ down a group in the periodic table.
a. decrease
b. increase
c. stay the same
d. follow no pattern

____ 38. Which of the following is the best evidence for the existence of sublevels?
a. large gaps in a spectrum
b. only four lines in a spectrum
c. all colors of light in a spectrum
d. closely spaced lines in a spectrum

____ 39. A metallic ion is _____ its corresponding atom.
a. impossible to compare with
b. larger than
c. smaller than
d. the same size as

____ 40. Each row in the periodic table ends with a _____.

a. metal
b. noble gas
c. nonmetal
d. metalloid

Modified True/False
Indicate whether the statement is true or false.

____ 41. A bond formed between two atoms with an electronegativity difference of 0.7 is likely to be a nonpolar covalent bond. _____

____ 42. In general, the boiling point of a polar liquid is likely to be higher than the boiling point of a nonpolar liquid of about the same mass. _____

____ 43. The configuration [He]$2s^2 2p^4$ is an abbreviated form of the configuration 1s22s22p4. _____

____ 44. All triatomic molecules are linear. _____

____ 45. A dipole interaction takes place when the positive end of one polar molecule attracts the positive end of a second polar molecule. _____

____ 46. The 1*s* orbital is farther from the nucleus than is the 2*s* sublevel. _____

____ 47. The higher the frequency of electromagnetic radiation, the lower its wavelength. _____

____ 48. In moving from a lower energy level to a higher energy level in an atom, an electron emits energy. _____

____ 49. A nonpolar molecule may contain polar covalent bonds. _____

____ 50. Cesium is an example of an element with a high electronegativity. _____

____ 51. The maximum number of electrons in any *f* sublevel is 18. _____

____ 52. The symbol [He] stands for the electron configuration 1s22s22p6. _____

____ 53. The results of Rutherford's gold foil experiment suggested that most of an atom is solid. _____

____ 54. The maximum number of electrons in any *p* sublevel is six. _____

____ 55. In general, the vast majority of ionic compounds are liquids at room temperature. _____

____ 56. The geometry of alkene molecules is rigid because of the presence of a double bond. _____

____ 57. When an electron absorbs a specific amount of energy, the electron can jump to a higher energy level. _____

____ 58. The three *p* orbitals in an energy level are arranged at right angles to each other. _____

____ 59. In general, the closer an orbital is to the nucleus, the more energy an electron possesses. _____

____ 60. The designations used to represent electron energy sublevels in an atom are *a, b, c,* and *d*. _____

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