NTI Day Two

1. Why did J. J Thomson reason that electrons must be a part of the atoms of all elements?

2. Which statement is true about the charge of all atoms?

a. positively charged, with the number of protons exceeding the number of electrons

b. negatively charged, with the number of electrons exceeding the number of protons

c. neutral, with the number of protons equaling the number of electrons

d. neutral, with the number of protons equaling the number of electrons, which is equal to the number of neutrons

3. Using the periodic table, determine the number of neutrons in 16 O.

4. Which of the following sets of symbols represent isotopes of the same element?

5. How do the isotopes hydrogen-1 and hydrogen-2 differ?

6. In Bohr’s model of the atom, where are the electrons and protons located?

7. When an electron moves from a lower to a higher energy level, what happens to the electron?

8. What is the next atomic orbital in the series 1*s*, 2*s*, 2*p*, 3*s*, 3*p*?

9. If three electrons are available to fill three empty 2*p* atomic orbitals, how will the electrons be distributed in the orbitals?

10. How does the speed of visible light compare with the speed of gamma rays when both speeds are measured in a vacuum?

11. Which type of electromagnetic radiation includes the wavelength 10-7 m?

a. gamma ray

b. microwave

c. radio wave

d. visible light

12. How do the energy differences between the higher energy levels of an atom compare with the energy differences between the lower energy levels of the atom?

13. Who arranged the elements according to atomic mass and used the arrangement to predict the properties of missing elements?

14. What element has the electron configuration 1s2 2s2 2p6 3s2 3p2 ?

15. Which subatomic particle plays the greatest part in determining the properties of an element?

16. What are the Group 17 elements examples of?

17. Which of the following factors contributes to the increase in atomic size within a group in the periodic table as the atomic number increases?

18. What is the energy required to remove an electron from an atom in the gaseous state called?

19. Which of the following elements has the lowest electronegativity?

a. lithium

b. carbon

c. bromine

d. fluorine

20. Which factors contribute to the increase in ionization energy from left to right across a period?

21. What happens when you move from left to right across the second period of the periodic table?

22. What type of reaction occurs when small nuclei combine to form a heavier nucleus?

23. What particle is needed to complete this nuclear reaction?

24. What best describes a characteristic of a radioisotope taken internally for medical reasons?

25. Which of the following naturally occurring radioisotopes would be most useful in dating objects thought to be millions of years old?