Practice Chapter 4 test questions

1. The last electron for lead goes into the ___sublevel.
   a. 5p b. 6p c. 4d d. 5d

2. The electron configuration of the two outer subshells of vanadium (V) is
   a. $4s^3 3d^2$ b. $4s^2 4p^3$ c. $4s^2 3d^3$ d. $4s^1 3d^4$

3. Which electron transition in a hydrogen atom is associated with the largest emission of energy?
   a. $n = 2$ to $n = 1$ b. $n = 2$ to $n = 4$ c. $n = 2$ to $n = 3$ d. $n = 3$ to $n = 2$

4. Which of the following orbital notation of the p orbitals could represent the ground state of the p electrons of carbon?
   a. ↑↓ __ __ b. ↑↑ __ __ c. ↑ ↑ __ d. ↑ ↓ __

5. Which of the following colors has the lowest frequency?
   a. red b. yellow c. green d. violet

6. There are __ sublevels in the third energy level .
   a. 3 b. 9 c. 18 d. none of these

7. The expression "it is not possible to know the velocity and position of a particle at the same time" is an expression of
   a. Hund's rule b. the Aufbau Principle c. the Pauli Exclusion Principle d. the Heisenberg Uncertainity Principle

8. The maximum number of electrons in the 5f sublevel is __
   a. 5` b. 14 c. 50 d. none of these

9. Of the following, __ is evidence of the particle nature of electromagnetic radiation.
   a. interference b. photoelectric effect c. polarization d. frequency

10. There are __ orbitals in the 4d sublevel
    a. 4 b. 5 c. 10 d. none of these

11. __ electrons are needed to fill the fourth energy level
    a. 4 b. 16 c. 18 d. 32

12. In the hydrogen spectrum, the spectral lines of the Balmer series, compared with the lines of the Paschen series, have
    a. longer wavelengths and less energy.
    b. longer wavelengths and more energy.
    c. shorter wavelengths and more energy.
    d. shorter wavelengths and less energy.

13. A wave from a radio station has energy of 6.88×10^{-29} J. What is its frequency in hertz.

14. Calculate the wavelength of light needed to ionize a gaseous potassium atom if 4.60×10^{-19}J are required?

15. Draw the orbital notation for nickel

16. Write the complete electron configuration for silver

17. Write the noble gas electron configuration for bismuth _____

a