

Chapter 4 Review

Multiple Choice: Choose the best answer from the answers given.

- $1s^2 2s^2 2p^6 3s^2 3p^4$ represents which element?
a. magnesium b. sulfur c. sodium d. titanium
- Which color of visible light has the longest wavelength?
 a. red b. blue c. violet d. yellow
- The sixth energy level contains
a. an s sublevel only b. an s and p sublevel only
c. an s, p, and d sublevel only d. an s, p, d, and f sublevel
- What is the maximum number of electrons that can fit into the 5 d sublevel?
a. 6 b. 2 c. 10 d. 14
- The entire 3rd energy level can hold _____ electrons.
 a. 18 b. 6 c. 10 d. 32
- The shape of a p sublevel is
a. round b. spherical c. dumbbell d. very complex
- Which of the following would be used to show a sublevel?
a. 5 b. → c. d d. ↓
- Which scientist is credited with the solar system model of the atom which was able to explain only hydrogen atoms?
a. Griffith b. Heisenberg c. Bohr d. deBroglie
- Which of the following takes advantage of being able to use an order of filling diagram?
a. Heisenberg's Uncertainty principle b. Hund's rule
 c. Aufbau principle d. Pauli Exclusion principle
- A region in space where a specific electron is likely to be found is known as an atomic
a. zone b. sublevel c. orbital d. energy level
- Being able to spin your right finger forward and your left finger backward demonstrates part of the
a. Heisenberg's Uncertainty principle b. Hund's rule
c. Aufbau principle d. Pauli Exclusion principle
- Waves can be described in terms of their amplitude, speed, wavelength and
a. power b. frequency c. magnitude d. volume

13. A wave with a high frequency has a(n) _____ wavelength.
 a. long b. unmeasurable c. short d. high
14. Which of the following is not part of the electromagnetic spectrum?
a. sound waves b. x-rays c. radiowaves d. microwaves

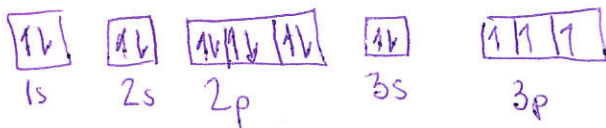
Short answer/Problems: Answer each of the following completely.

15. Electrons are known to have a **dual nature**. Briefly explain what this means. You can use examples from class to help you explain.

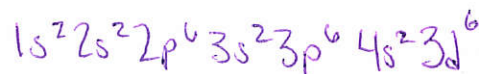
behave like matter and energy

- ~~16.~~ Draw an order of filling diagram neatly on your answer sheet.

17. Draw an orbital diagram for phosphorus (this is the one that shows the orbitals).

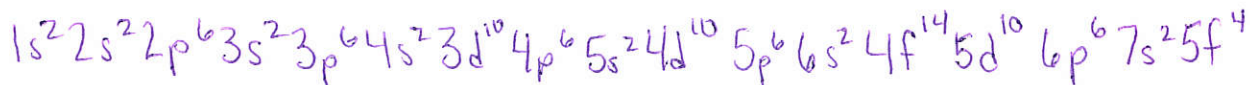


18. a. Write an electron configuration for iron (Fe).
 b. How many unpaired electrons does iron have?



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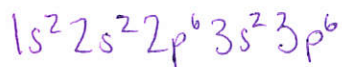
19. Write the electron configuration for uranium (U).



20. Look at question number 1, explain how you determined which element it was.

Count # of e⁻

21. Draw the electron configuration for Ca^{+2} *18e⁻*



22. Draw the electron configuration for P^{-3} *18e⁻*

