

1. The s orbital is the lowest energy subshell for any shell.

- (A) True
- (B) False

2. Only 2 electrons are allowed in any s orbital.

- (A) True
- (B) False

3. How many electrons are allowed in a p subshell?

- (A) 2
- (B) 4
- (C) 6
- (D) 8

4. How many electrons are allowed in a d subshell?

- (A) 4
- (B) 6
- (C) 8
- (D) 10

5. Subshell d has 5 slots. Which statement is true about subshell d?

- (A) All of the electrons in the five slots spin in the same direction
- (B) all of the electrons in the five slots have the same energy

(C) each pair of electrons in the five slots orbits the nucleus in the same shaped probability cloud but oriented at a different angle

(D) each pair of electrons in the five slots orbits the nucleus in a different shaped probability cloud

6. An electron in subshell 2p can move to subshell 2d if \_\_\_\_\_.

(A) if all the slots between 2p and 2d are filled

(B) if a more energetic electron can take its place in the 2p subshell

(C) if the electron can shed exactly the right amount of energy to reach the 2d subshell

(D) if the electron already has the right amount of energy to reach the 2d subshell

7. Electrons of increasing energy enter the next higher energy orbital. After the 3p subshell is filled, the next highest subshell is \_\_\_\_\_.

(A) 3p

(B) 3d

(C) 4s

(D) 4d

8. The reason two electrons can both fit into the same slot of a subshell is that \_\_\_\_\_.

- (A) they are moving in different axes
- (B) their orbitals have different shapes
- (C) they are spinning in the same direction
- (D) they are spinning in opposite directions

9. Ionization energy is the energy needed to \_\_\_\_\_.

- (A) remove an electron from an atom's outer orbit
- (B) remove an electron from an atom's inner orbit
- (C) add an electron to an atom's outer orbit
- (D) add an electron to an atom's inner orbit

10. Which element has the highest ionization energy?

- (A) sodium
- (B) gold
- (C) fluorine
- (D) neon

11. The removal of electrons from an atom is called \_\_\_\_\_.

- (A) isomerization
- (B) oxidation
- (C) reduction
- (D) hybridization

12. Metals that hold onto their electrons extremely tightly \_\_\_\_\_.

- (A) are called halogen metals
- (B) are called transition metals
- (C) are called noble metals
- (D) have the lowest ionization energies