

# Chapter 6 – Problem Set 1

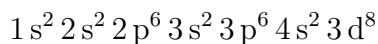
Michael Brodskiy

Instructor: Mr. Morgan

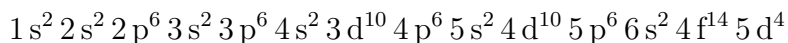
November 12, 2020

1. Write the electron configuration for the following:

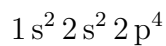
(a) Nickel



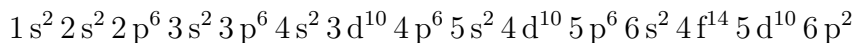
(b) Tungsten



(c) Oxygen

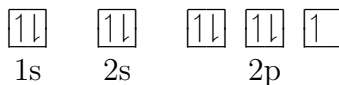


(d) Lead

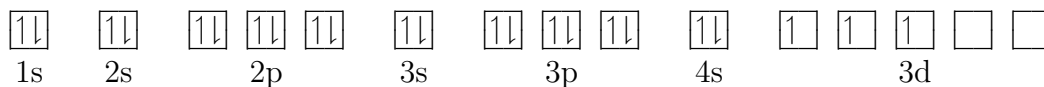


2. Write the box diagram for the following:

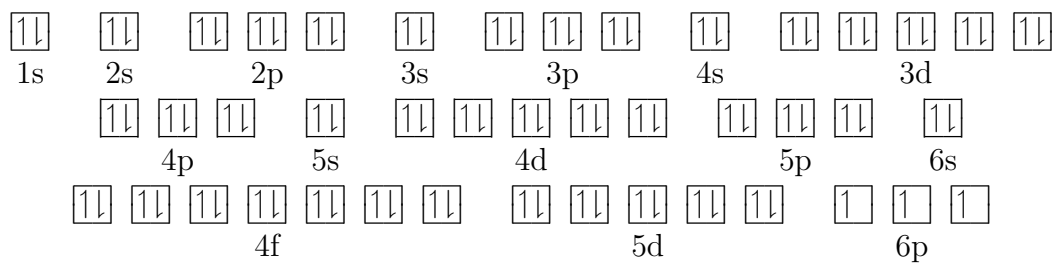
(a) Fluorine



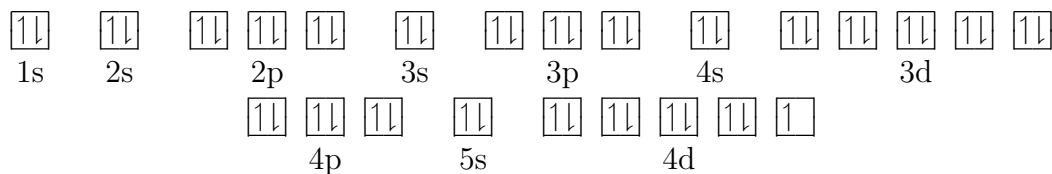
(b) Vanadium



(c) Bismuth



(d) Silver



3. Give the four quantum numbers for the second to last electron in the following:

(a) Calcium

$$n = 4, l = 0, m_l = 0, m_s = \frac{1}{2}$$

(b) Iodine

$$n = 5, l = 1, m_l = -1, m_s = -\frac{1}{2}$$

(c) Tin

$$n = 5, l = 1, m_l = -1, m_s = \frac{1}{2}$$

(d) Carbon

$$n = 2, l = 1, m_l = -1, m_s = \frac{1}{2}$$

(e) Radon

$$n = 6, l = 1, m_l = 0, m_s = -\frac{1}{2}$$

(f) Gallium

$$n = 3, l = 2, m_l = 2, m_s = -\frac{1}{2}$$

4. State how many electrons are in the following:

(a) f orbital

14

(b) d sublevel

10

- |  |    |
|--|----|
| (c) All sublevels where $n = 3$                                      | 18 |
| (d) All sublevels where $n = 5$                                      | 32 |
| (e) $l = 2$  | 10 |
| (f) $l = 0$  | 2  |
| 5. State the number of unpaired electrons in:                        |    |
| (a) Iron   | 4  |
| (b) Arsenic  | 3  |
| (c) Tin  | 2  |
| (d) Silver   | 1  |
| 6. State what atom's electron configuration ends with the following: |    |
| (a) $3d^3$   | V  |
| (b) $4p^2$   | Ge |
| (c) $4f^7$   | Eu |
| (d) $5s^1$   | Rb |
| (e) $6s^2$   | Ba |
| (f) $5d^8$   | Pt |