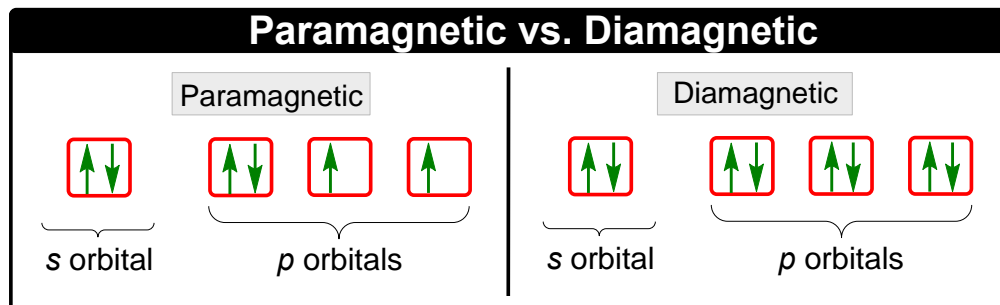


## CONCEPT: PARAMAGNETISM AND DIAMAGNETISM

- Recall, an orbital can hold a maximum of 2 electrons that pair up with opposite spins.
  - **Paramagnetic:** When at least one electron in given orbitals is \_\_\_\_\_.
  - **Diamagnetic:** All electrons in given orbitals are \_\_\_\_\_.
- Paramagnetic substances are magnetic.



**EXAMPLE:** Determine if the vanadium atom is paramagnetic or diamagnetic.

**PRACTICE:** Which of the following atoms has the most unpaired electrons?

- a) Co                      b) Mn                      c) Ti                      d) Zn                      e) Fe

**PRACTICE:** Write the condensed electron configuration for the nickel (III) ion and state if it is paramagnetic or diamagnetic.

**PRACTICE:** Write the condensed electron configuration for the copper (I) ion and is it magnetic?