

Electron Configuration Classwork

A. Write the complete electron configuration for the following:

1. Na: $1s^2 2s^2 2p^6 3s^1$
2. Pb: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 4f^{14} 5d^{10} 6p^2$
3. Sr: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2$
4. U: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 4f^{14} 5d^{10} 6p^6 7s^2 5f^3 6d^1$
5. N: $1s^2 2s^2 2p^3$
6. Ag: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^9$
7. Ti: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^2$
8. Ce: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 4f^1 5d^1$
9. Cl: $1s^2 2s^2 2p^6 3s^2 3p^5$
10. Hg: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 4f^{14} 5d^{10}$
11. sodium $1s^2 2s^2 2p^6 3s^1$
12. iron $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^6$
13. bromine $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^5$
14. barium $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2$
15. silver $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^9$

B. Identify the following elements:

16. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^4$: Se
17. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6$: ~~Ar~~ Kr (oops!)
18. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 4f^{10}$: Ho

C. In the space below, write the Noble Gas (abbreviated) electron configurations of the following elements:

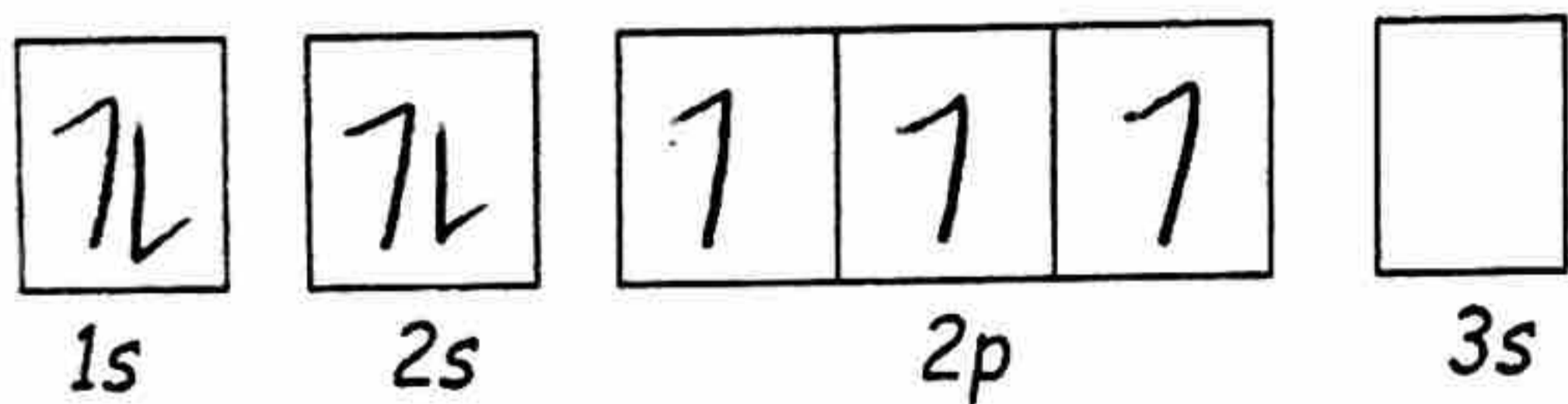
- 1) cobalt $[Ar] 4s^2 3d^7$
- 2) silver $[Kr] 5s^2 4d^9$
- 3) tellurium $[Kr] 5s^2 4d^{10} 5p^4$
- 4) radium $[Rn] 7s^2$
- 5) zinc $[Ar] 4s^2 3d^{10}$

D. Determine what elements are denoted by the following electron configurations:

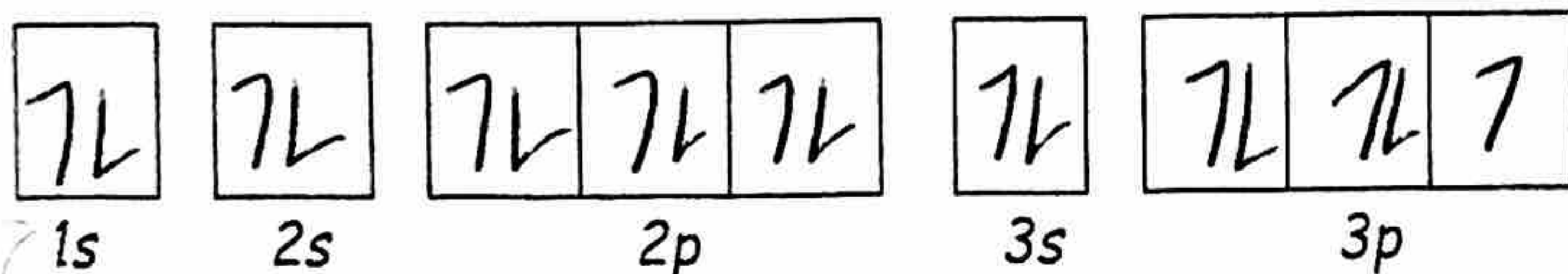
- 6) $1s^2 2s^2 2p^6 3s^2 3p^4$ S
- 7) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^1$ Rb
- 8) $[Kr] 5s^2 4d^{10} 5p^3$ Sb
- 9) $[Xe] 6s^2 4f^{14} 5d^6$ ~~Ru~~ Os
- 10) $[Rn] 7s^2 5f^{11}$ Fm

E. Write the full electron configuration, short-hand electron configuration, and fill in the orbital diagrams, for the following elements.

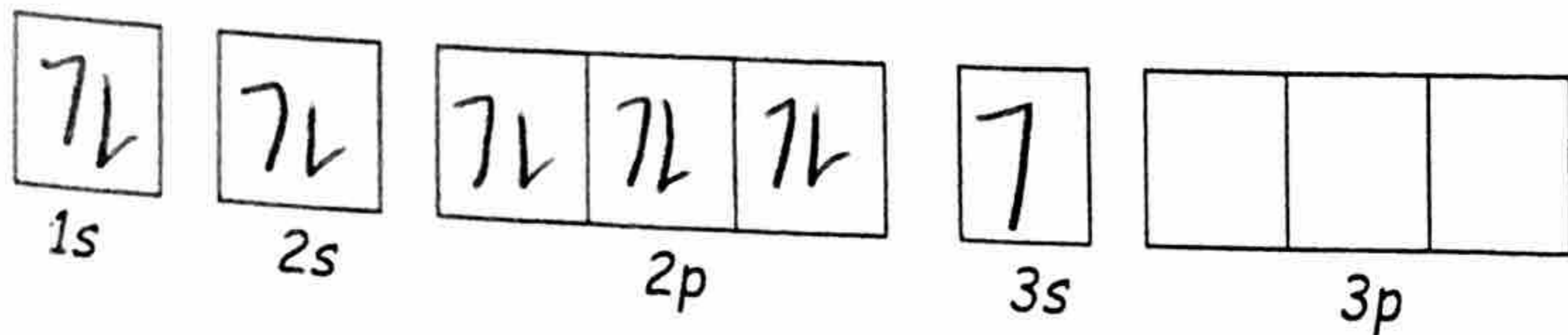
1. Nitrogen $1s^2 2s^2 2p^3$ $[He] 2s^2 2p^3$



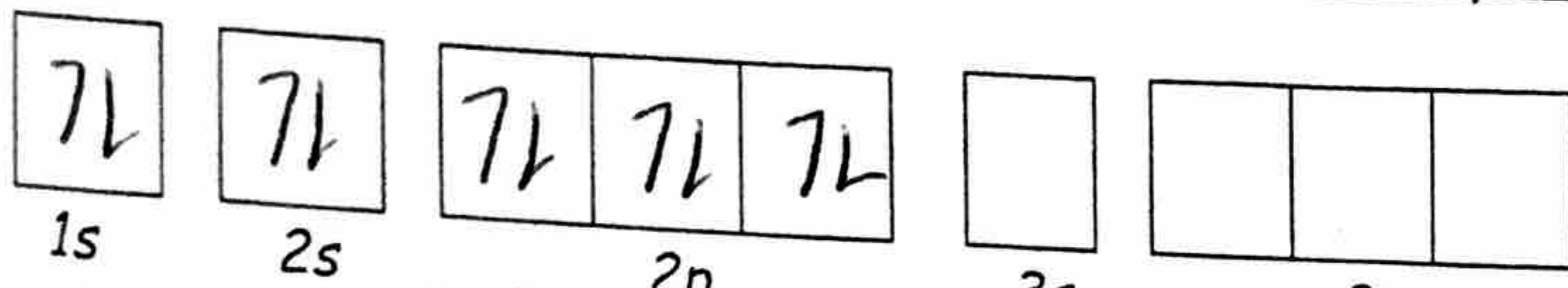
2. Chlorine $1s^2 2s^2 2p^6 3s^2 3p^5$ $[Ne] 3s^2 3p^5$



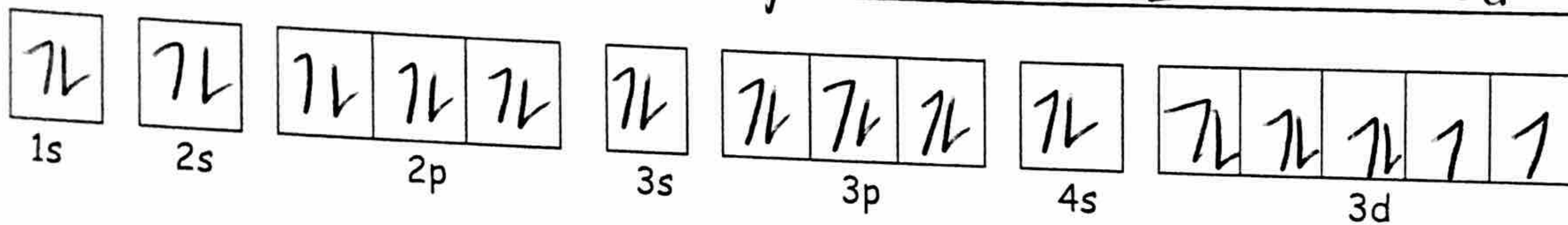
3. Sodium $1s^2 2s^2 2p^6 3s^1$ [Ne] $3s^1$



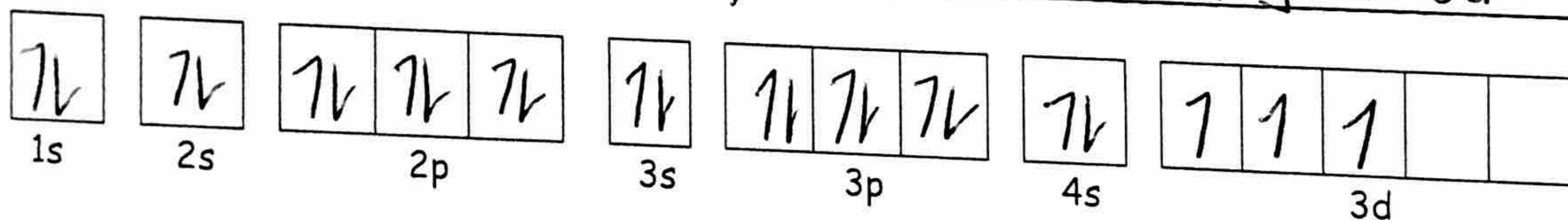
4. Neon $1s^2 2s^2 2p^6$ [He] $2s^2 2p^6$



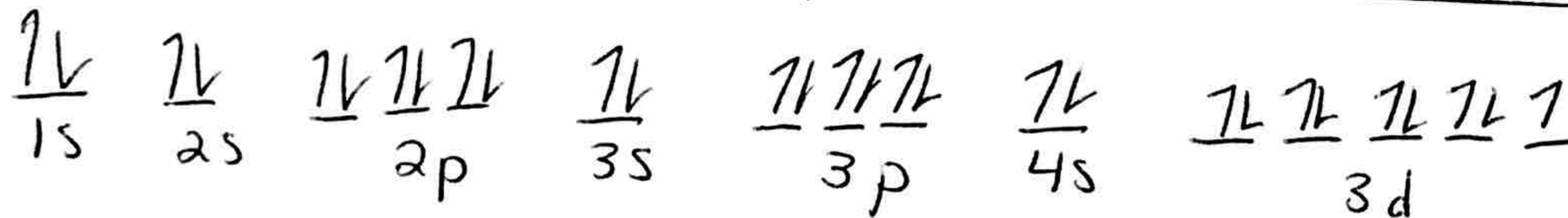
5. Nickel $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^8$ [Ar] $4s^2 3d^8$



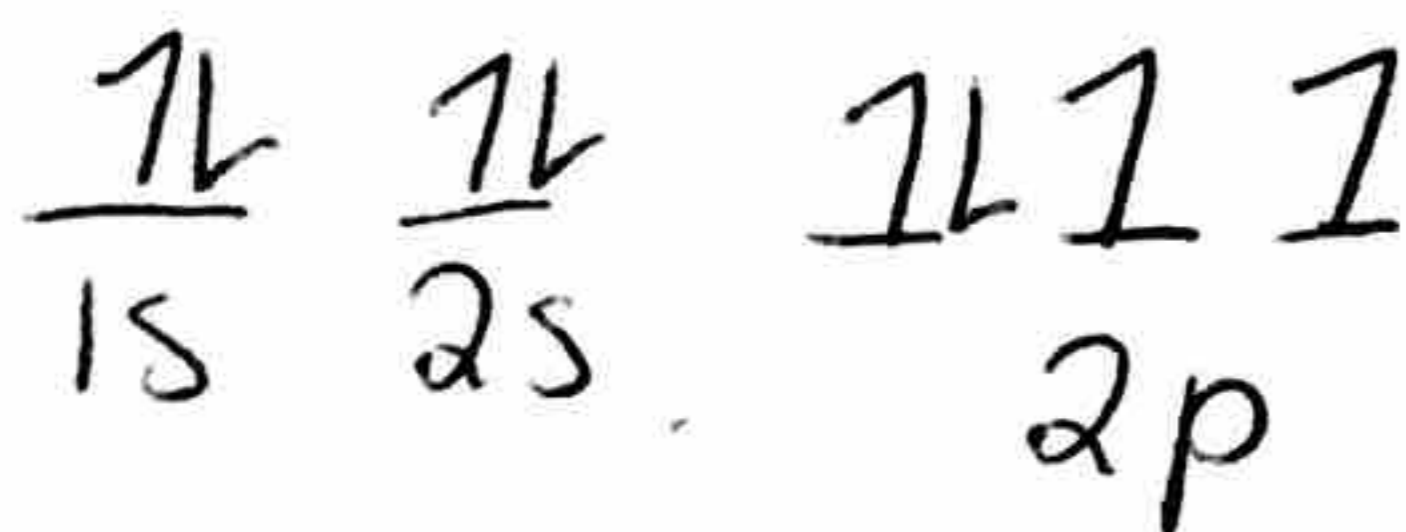
6) Vanadium $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^3$ [Ar] $4s^2 3d^3$



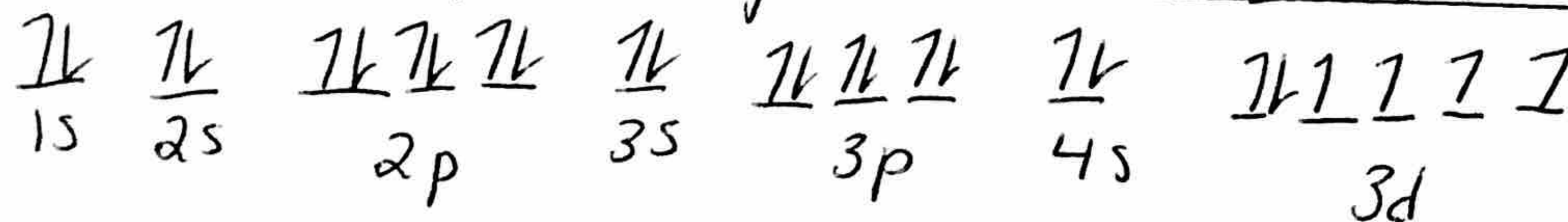
7) Copper $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^9$ [Ar] $4s^2 3d^9$



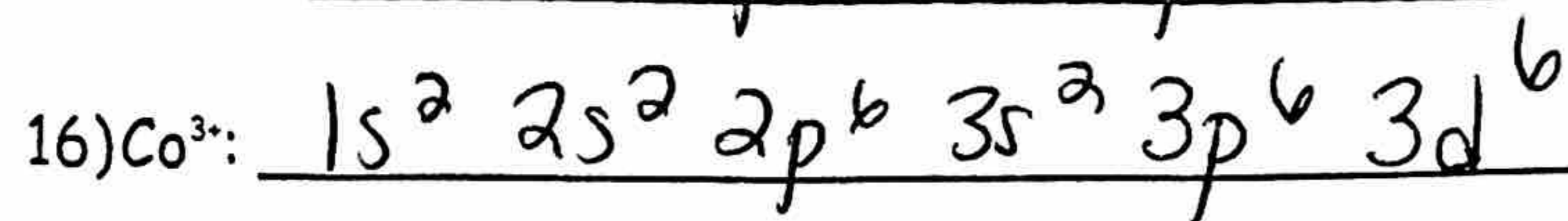
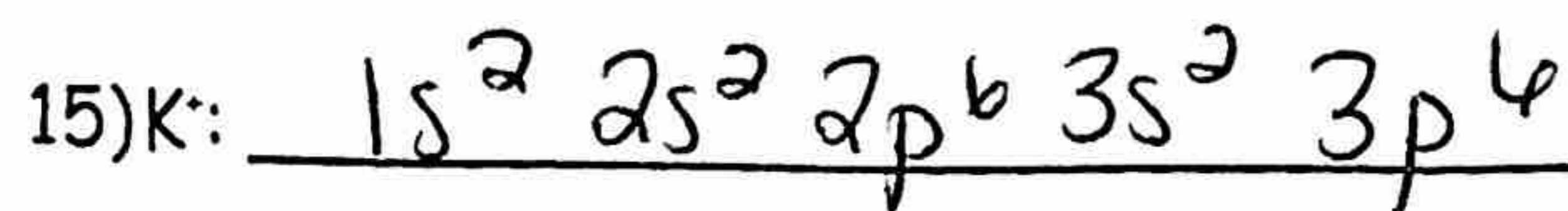
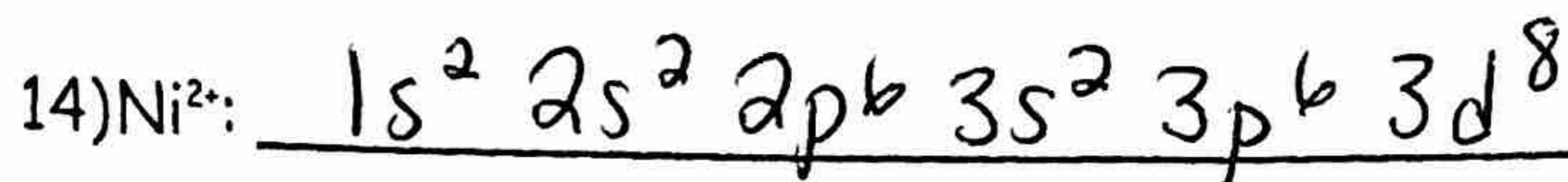
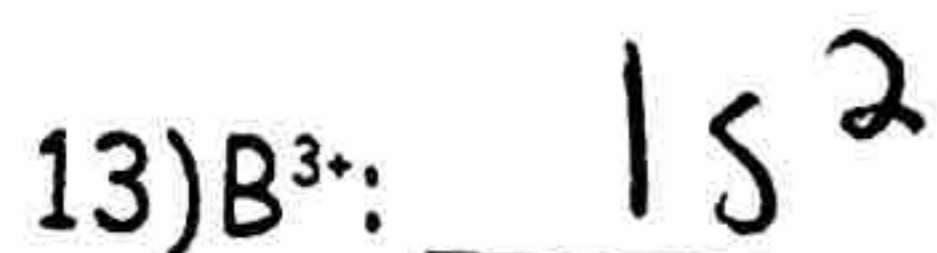
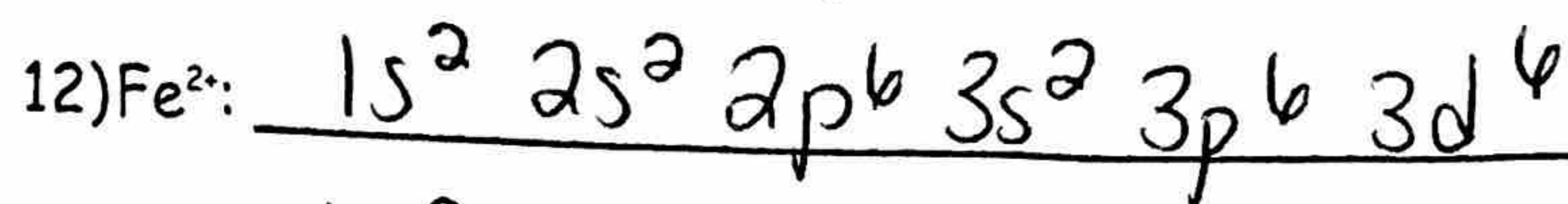
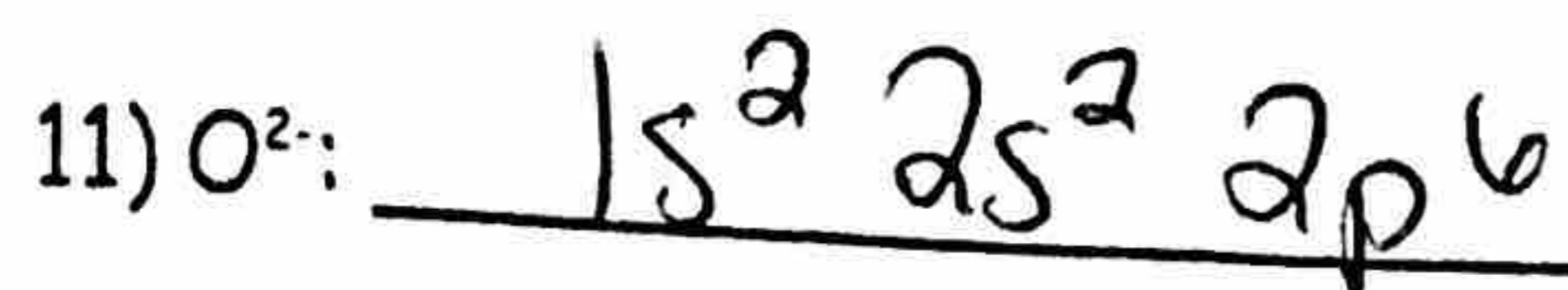
8) Oxygen $1s^2 2s^2 2p^4$ [He] $2s^2 2p^4$



9) Iron $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^6$ [Ar] $4s^2 3d^6$



Write the complete electron configuration for the following ions:



Electron Configurations, Noble Gas Notation & Orbital Notation

Part 1: Write the electron configuration for the following elements.

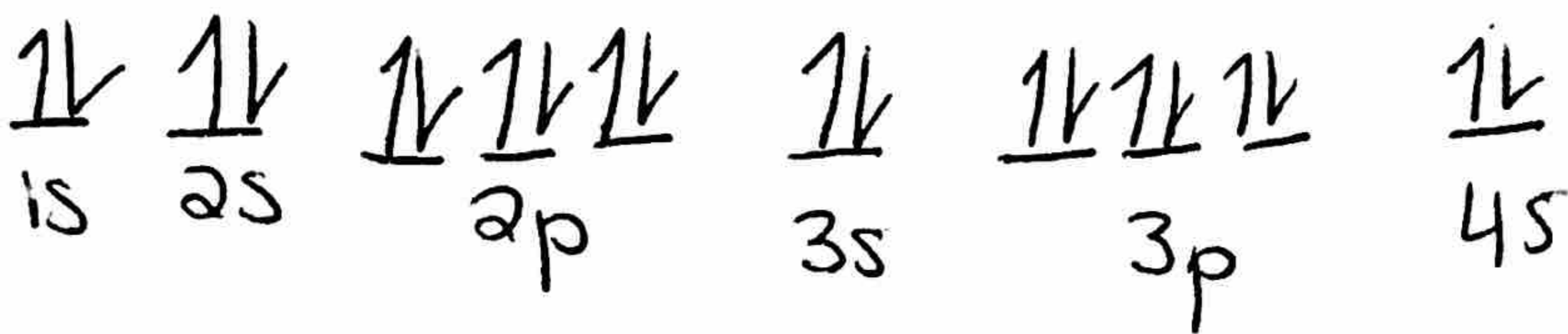
1. Fluorine: $1s^2 2s^2 2p^5$
2. Vanadium: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^3$
3. Arsenic: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^3$
4. Lithium: $1s^2 2s^1$
5. Silver: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^9$
6. Yttrium: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^1$
7. Antimony: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^3$
8. Hydrogen: $1s^1$

Part 2: Write the noble gas configuration for the following elements.

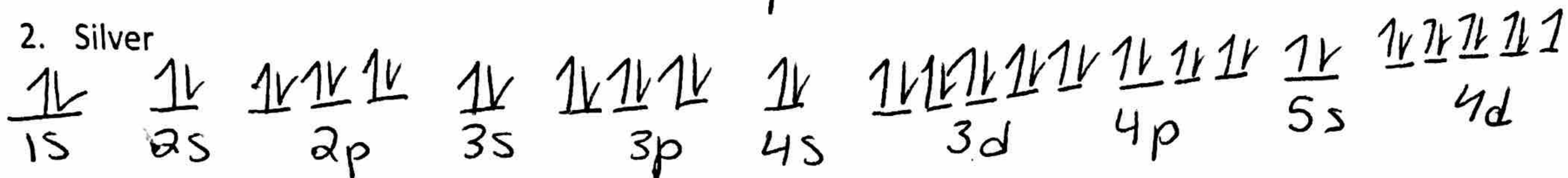
9. Chlorine: $[Ne] 3s^2 3p^5$
10. Zirconium: $[Kr] 5s^2 4d^2$
11. Oxygen: $[He] 2s^2 2p^4$
12. Magnesium: $[Ne] 3s^2$
13. Tin: $[Kr] 5s^2 4d^{10} 5p^2$
14. Xenon: $[Kr] 5s^2 4d^{10} 5p^6$
15. Ruthenium: $[Kr] 5s^2 4d^6$

part 3. Write the orbital notation for the following elements.

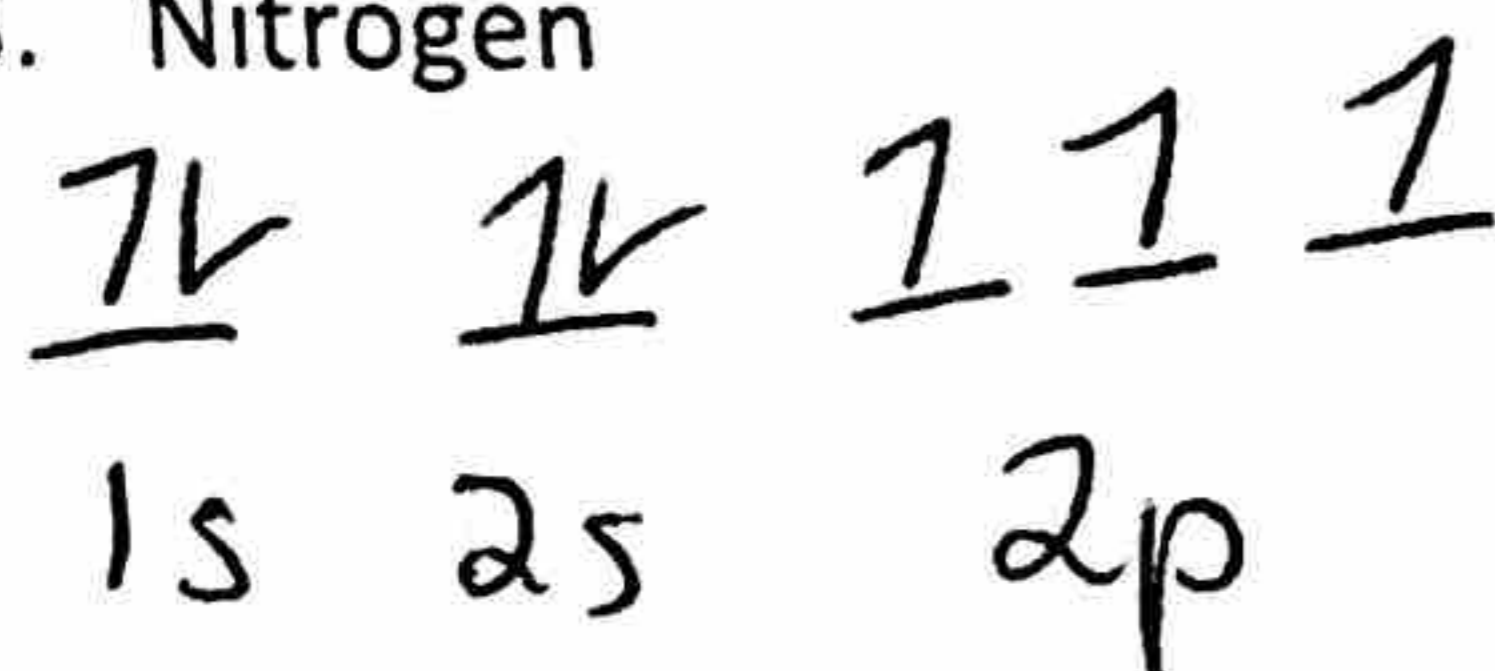
1. Calcium



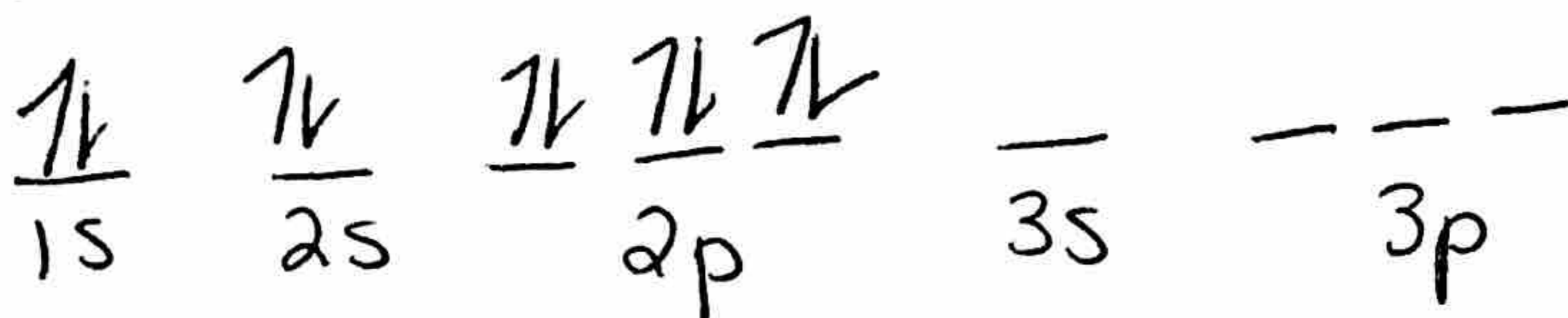
2. Silver



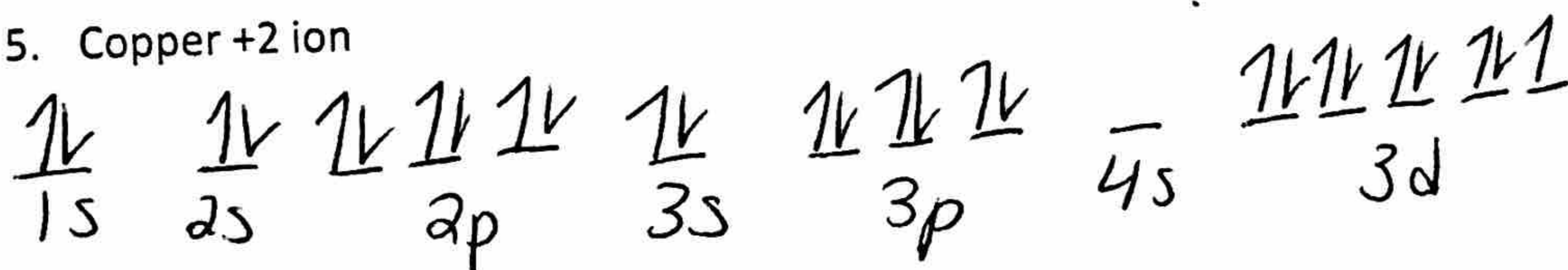
3. Nitrogen



4. Aluminum +3 ion



5. Copper +2 ion



6. Zirconium +2 ion

