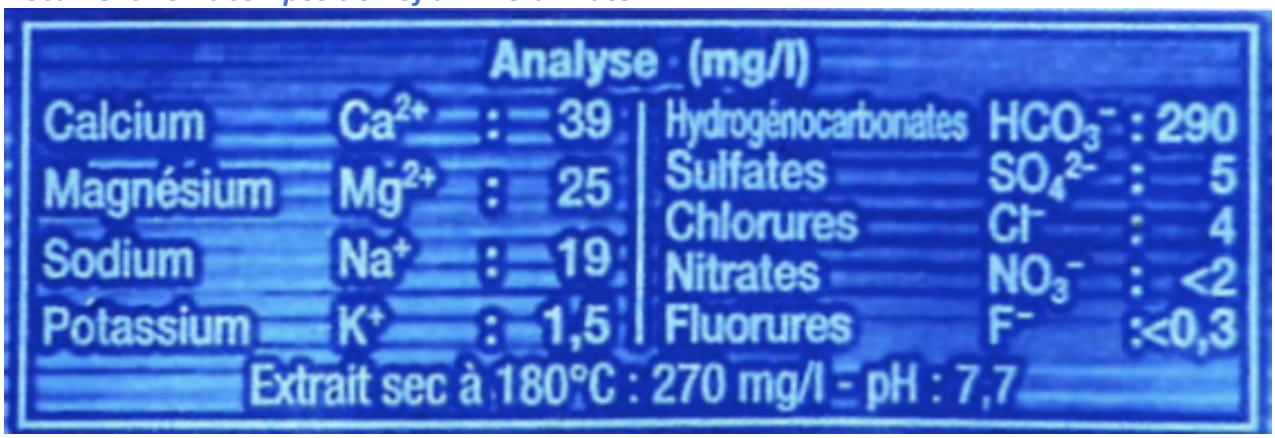
Qualitative analysis of a mineral water

Document: Ionic composition of a mineral water



1. **How are the ions on the left column called?**
2. **For each of these ions, determine their number of valence shell electrons.**
3. **What can you say about their stability? Justify your answer.**
4. **How are the ions on the right column called?**
5. **Determine the number of valence shell electrons of the chlorine and fluorine ions.**
6. **What can you say about their stability? Justify your answer.**
7. **Propose a "strategy" an element can "apply" to become stable.**
8. **Apply this strategy to the elements aluminum and nitrogen and determine the formula of the ion they are susceptible to form.**
   And what about carbon?
9. **Would there be another way for elements to become stable? Use examples in the document to support your answer.**
10. **If your answer to question 9 is yes, what would this other "strategy" be?**