

Accompanying Questions  
Topic 02: Ions and Periodic Properties

## Objective:

This is to provide guiding questions to help you comprehend the material we have covered in this section of the class. These questions have been answered within the video lecture and/or live class.

## Instructions and Notes:

- Most of these questions/concepts are taken or derived from the chapters in the Chemistry: Atoms First 2e Online Textbook (OpenStax)
- Book sections covered: 2.3, 3.6, 3.7, 2.4, 1.5, Appendix B

## Submission:

Students do not submit this and it is not graded.

## Helpful Tips:

- These questions or very similar questions may appear on the exams so I strongly recommend that you complete them.
- Download the lectures and rewatch the lectures.
- Pause the lectures and rewind them through concepts you don't fully understand.
- Go to tutoring in the ASTC or MESA, ask your classmates in our Discord room, watch YouTube Videos, come to office hours, etc.

## In-Lecture Questions

1. True/False – A neutral atom has the same amount of electrons and protons
2. An atom with more electrons than protons is called a(n) \_\_\_\_\_?
3. An atom with more protons than electrons is called a(n) \_\_\_\_\_?
4. How many electrons in  $H^{1+}$ ?
5. How many electrons in  $Cl^{1-}$ ?
6. How many electrons in  $Al^{3+}$ ?
7. How many electrons in  $OH^{1-}$ ?
8. How many electrons in  $NH_4^{1+}$ ?
9. Is lithium a metal or nonmetal?
10. Is chlorine a metal or nonmetal?
11. Is hydrogen a metal or nonmetal?
12. Is silicon a metal or nonmetal?
13. Give the symbol and name for the ion with 34 protons and 36 electrons.

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14. An ion of platinum has a mass number of 195 and contains 74 electrons. How many protons and neutrons does it contain, and what is its charge?
15. Write the symbol, atomic number, mass number, and charge for calcium with 18 electrons.
16. Write the symbol, atomic number, mass number, and charge for nitrogen with 10 electrons.
17. Predict the charge of Mg
18. Predict the charge of F
19. Predict the charge of Kr
20. Combine atoms of Mg and F to make a neutral compound (the charges added together equal 0)
21. Convert 70,602, 020,000 to exponential notation.
22. Convert 0.000197345 to exponential notation.
23. Convert  $2 \times 10^6$  to standard notation.
24. Convert  $9.27542 \times 10^{-7}$  to standard notation.
25. What is a mole?
26. If you have 12 g C. How many moles are there?
27. If you have 6 g C. How many moles are there?
28. If you have 1 mol Si. How many grams are there?
29. If you have 2 mols C. How many grams are there?