Accompanying Questions
Topic 01: Atomic Structure and Significant Figures

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: 2.1, 2.2, 2.3, 3.6, 1.5

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.

Accompanying Questions

Lecture 1 of 3

1. What is the charge of an electron?
2. What is the charge of a proton?
3. What is the charge of a neutron?
4. What has more mass, an electron or proton?
5. True or False, a proton is about the same size as a neutron?
6. Where are electrons located?
7. Where are protons located?
8. Where are neutrons located?
9. What particle defines the element or gives that element it's specific properties?
10. What is an atomic number?
11. What is a mass number?
12. What are the two different units of mass on the period table?

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Lecture 2 of 3

13. What is an isotope?
14. Write the symbol, mass number, and atomic number for carbon with 6 neutrons.
15. Write the symbol, mass number, and atomic number for chlorine with 18 neutrons.
16. Write the symbol, mass number, and atomic number for silver with 62 neutrons.
17. Round 0.424 to two significant figures
18. Round 0.0038661 to three significant figures
19. Round 421.25 to four significant figures
20. Round 28,683.5 to five significant figures
21. How many significant figures in 101?
22. How many significant figures in 1010?
23. How many significant figures in 1010. ?
24. How many significant figures in 1010.00?

Lecture 3 of 3

25. Add 2.334 mL and 0.31 mL. (remember sig figs and units!)
26. Subtract 55.8752 m from 56.533 m. (remember sig figs and units!)
27. Multiply 2.334 cm and 0.320 cm. (remember sig figs and units!)
28. Divide 55.8752 m by 56.53 s. (remember sig figs and units!)
29. 2.334 cm x (0.320 cm – 0.12 cm) (remember sig figs and units!)
30. (55.8752 m + 6.22 m) / 56.53 s (remember sig figs and units!)
31. What is atomic mass?
32. Calculate the atomic mass of boron. Boron-5 has a mass of 10.0129 amu (or g/mol) and a natural abundance of 19.9% and Boron-6 has a mass of 11.0093 amu (or g/mol) and a natural abundance of 80.1%.
33. Calculate the atomic mass of magnesium. Mg-24 has a mass of 23.98 g/mol and a natural abundance of 78.70%, Mg-25 has a mass of 24.99 g/mol and an abundance of 10.13%, and Mg-26 has a mass of 25.98 g/mol and a natural abundance of 11.17%.