Atomic Structure:

Use the periodic table to complete the following using the most common isotope for each, assuming neutral atoms:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Element | Symbol | Atomic Number | Atomic Mass (rounded) | Protons | Neutrons | Electrons | Valence Electrons |
| Sodium | Na | **11** | **23** | 11 | 12 | 11 | 1 |
| **Yttrium** | Y | **39** | **89** | 39 | **50** | 39 | **3** |
| **Zinc** | **Zn** | 30 | 65 | **30** | **35** | **30** | **12** |
| **Chlorine** | **Cl** | 17 | **36** | **17** | **19** | **17** | **7** |
| **Cobalt** | Co | **27** | **59** | **27** | **32** | **27** | 9 |
| **Aluminum** | Al | **13** | **27** | **13** | **14** | **13** | **3** |
| Iron | **Fe** | **26** | **56** | **26** | 30 | **26** | **8** |
| Nitrogen | **N** | **7** | **14** | **7** | **8** | **7** | **5** |
| **Hydrogen** | H | **1** | **1** | **1** | **0** | **1** | **1** |
| **Zinc** | Zn | **30** | **65** | **30** | **35** | **30** | **12** |
| Bromine | **Br** | **35** | 80 | **35** | **45** | **35** | **17** |
| Oxygen | **O** | **8** | **16** | **8** | 8 | **8** | **6** |

For the following use the information given about the following isotopes and ions to complete the table.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Isotope | Isotope Symbol | Ion Symbol | Atomic Number | Atomic Mass | Protons | Neutrons | Electrons | Valence Electrons | Ionic Charge | Cation or Anion |
| Sodium-22 | Na-22 | Na- | **11** | **22** | 11 | 11 | 12 | 2 | -1 | Anion |
| Hydrogen-2 | **H-2** | H+ | 1 | **2** | **1** | **1** | **0** | **0** | +1 | **C** |
| **Fluorine-20** | **F-20** | **F-** | 9 | 20 | **9** | **11** | 10 | **8** | **-1** | **A** |
| **Boron-11** | **B-11** | **B+3** | **5** | **11** | 5 | 6 | 2 | **2** | **+3** | **C** |
| **Calcium-21** | Ca-21 | Ca+2 | **20** | **21** | **20** | **1** | 18 | **8** | +2 | Cation |
| **Potassium-39** | **K-39** | K | **19** | **39** | **19** | 20 | **19** | 1 | 0 |  |
| Helium-3 | **He-3** | He | **2** | **3** | **2** | **1** | **2** | **2** | **0** |  |
| **Sulphur-32** | S-32 | S-2 | **16** | **32** | **16** | **16** | **18** | **8** | **-2** | **A** |
| **Titanium-47** | **Ti-47** | **Ti+4** | 22 | **47** | **22** | 25 | 18 | **8** | **+4** | **C** |
| **Nitrogen-15** | **N-15** | **N-3** | **7** | 15 | 7 | **8** | **10** | **8** | -3 | **A** |
| Carbon-14 | **C-14** | **C+4** | **6** | **14** | **6** | **8** | **2** | **2** | +4 | **C** |
| **Lithium-7** | **Li-7** | **Li+** | **3** | **7** | 3 | 4 | **2** | 2 | +1 | **C** |