

## ***ConcepTest Questions on Atoms, Molecules, Element & Compound***

***Designed to distinguish between the 4 terms.***

Which of the following is classified as a compound?

1. F
2. F<sub>2</sub>
3. F<sup>-</sup>
4. None of the above.

***Correct Answer: 4. None of the above.***

*Comment to Instructor: Choice 2 means the student is thinking a compound as anything with more than one atom.*

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What is the formula for aluminum in a sheet of aluminum foil?

1. Al
2. Al<sub>2</sub>
3. Al<sub>3</sub>
4. Al<sup>3+</sup>

***Correct Answer: 1. Al***

*Comment to instructor: Choice 2 means student thinks all elements are diatomic.*

*Students may select Choice 3 thinking that Al is Al<sub>3</sub> because it is in Group IIIA.*

*Students select Choice 4 because they learned that aluminum ions have a + 3 charge.*

*In a way they are correct. According to the Electron Sea Model for the structure of metals, Al exists as Al<sup>3+</sup> ions surrounded by a sea of electrons. However, the question is asking for the formula and since the total number of electrons equal to the number of positive charge, the correct answer is Al.*

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How is SCl<sub>2</sub> best classified?

1. molecular compound
2. ionic compound
3. metallic compound
4. none of the above.

***Correct Answer: 1. molecular compound***

*Comment to instructor: Students have great difficulty remembering the general rule that nonmetals combine to form molecular substances and metals and nonmetals combine to form ionic compounds when they are confronted with a formula. Unless they are told to apply this rule to determine what kind of compound they have, many of them are unlikely to remember to make use of it. It might not be a bad idea to ask a question of this sort at the beginning of every lecture until they get the idea.*