

# REVIEW

## Chapter 5 : Lesson 5A

### 1. Use the words in the Word Bank to help you formulate a complete explanation of the Bohr Model :

Ground State

more

Energy Levels

less

Excited State

Electrons within an atom orbit the nucleus in specific “shells” called \_\_\_\_\_.

These Energy Levels are at increasing distances from the nucleus : Electrons in Energy Levels closer to the nucleus, have \_\_\_\_\_ energy. Electrons in Energy Levels further away from the nucleus have \_\_\_\_\_ energy.

Electrons that absorb energy, can “jump” to higher Energy Levels. These Electrons are said to be in a(n) \_\_\_\_\_ state. Electrons that lose energy can fall back to lower Energy Levels and are said to be in a(n) \_\_\_\_\_ state.

### 2. Select all the statements that are TRUE about Valence Electrons.

- A) They are the Electrons in the Outermost Shell, furthest away from the nucleus.
- B) They are the Electrons in the Inner Shells, closer to the nucleus.
- C) They determine how chemically reactive an atom is.
- D) They do not take part in chemical reactions.

### 3. Select all the statements that are TRUE regarding the “Octet Rule”.

- A) All atoms are always in a chemically stable state.
- B) Atoms will always strive to become chemically stable.
- C) Atoms will always strive to obtain a Valence Shell configuration with 8 Electrons.
- D) Atoms can gain or lose Electrons in order to obtain a full Valence Shell.
- E) All Elements in Group 8 of the Periodic Table fulfill the Octet Rule.

#### 4. Use the Bohr diagram to help you answer the questions that follow :

Which element (name) is represented by this Bohr diagram ? \_\_\_\_\_

What is its Atomic Number ? \_\_\_\_\_

In what Period in the Periodic Table is this element ? \_\_\_\_\_

How many Energy Shells / Levels does it have ? \_\_\_\_\_

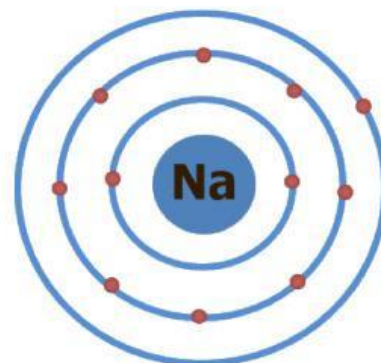
How many Electrons does it have in total ? \_\_\_\_\_

How many Valence Electrons does it have ? \_\_\_\_\_

Does it fulfill the Octet Rule ?

Is it chemically stable ?

Will it partake in chemical reactions ?



#### 5. Use the Bohr diagram to help you answer the questions that follow :

Which element (name) is represented by this Bohr diagram ? \_\_\_\_\_

What is its Atomic Number ? \_\_\_\_\_

In what Period in the Periodic Table is this element ? \_\_\_\_\_

How many Energy Shells / Levels does it have ? \_\_\_\_\_

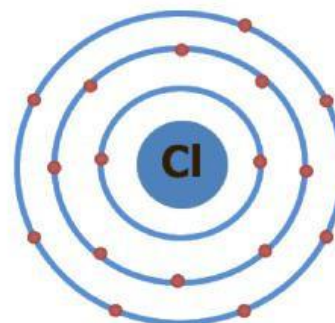
How many Electrons does it have in total ? \_\_\_\_\_

How many Valence Electrons does it have ? \_\_\_\_\_

Does it fulfill the Octet Rule ?

Is it chemically stable ?

Will it partake in chemical reactions ?



Do you think that Na (in Question 4) will chemically react with Cl (Question 5) ?

Why or Why not ? Select the correct reason.

- A) Both elements are stable and both have full Valence Shells.
- B) Both elements are unstable. In order to get stable, Chlorine will strive to gain the 1 Valence Electron that Sodium will strive to shed.
- C) Both elements are unstable. In order to get stable, Chlorine will strive to shed 7 Valence Electrons which Sodium will strive to gain.
- D) One of them are stable, while the other is unstable.

## 6. Use the Bohr diagram to help you answer the questions that follow :

Which element (name) is represented by this Bohr diagram ? \_\_\_\_\_

What is its Atomic Number ? \_\_\_\_\_

In what Period in the Periodic Table is this element ? \_\_\_\_\_

How many Energy Shells / Levels does it have ? \_\_\_\_\_

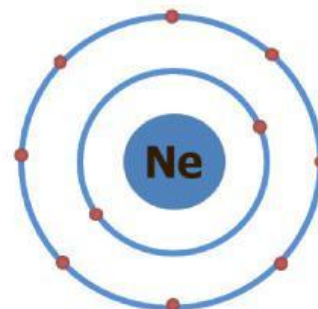
How many Electrons does it have in total ? \_\_\_\_\_

How many Valence Electrons does it have ? \_\_\_\_\_

Does it fulfill the Octet Rule ?

Is it chemically stable ?

Will it partake in chemical reactions ?



Do you think that Cl (in Question 5) will chemically react with Ne (Question 6) ?

Why or Why not ? Select the correct reason.

- A) Both elements are stable and both have full Valence Shells.
- B) Both elements are unstable. They will exchange Valence Electrons so that both can have full Valence Shells.
- C) Neon is stable, but Chlorine is unstable.
- D) Neon is unstable, but Chlorine is stable.
- E) Neon will gain the Valence Electrons that Chlorine will shed.