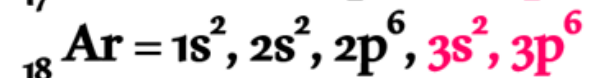
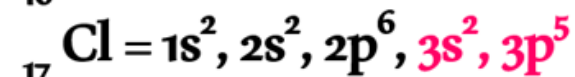
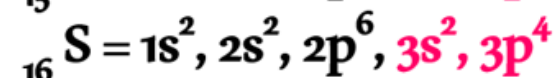
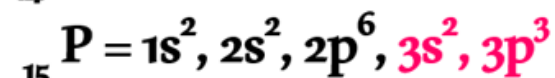
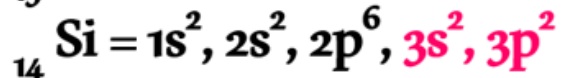
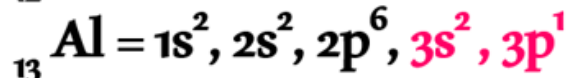
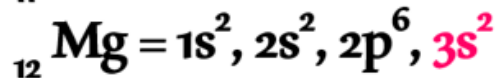
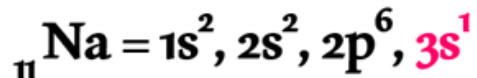


أَسْتَغْفِرُ اللَّهَ

O' ALLAH forgive us all

1. The **electronic configuration** of these elements can be written as;



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### Size of cation is smaller than neutral atom:

- As cations have
  - ★ lesser electrons, while
  - ★ their nuclear charge remains the same.
- The remaining electrons are, therefore held more tightly by the protons in the nucleus and thus their radii are smaller than the parent atoms.



### Size of anion is greater than neutral atom:

- In anions, the addition of 1 or more electrons would result in
  - ★ increased repulsion among the electrons and
  - ★ a decrease in the effective nuclear charge.
- So the valence electrons are held weakly by the protons in the nucleus and thus their radii are greater than the parent atoms.



### Trend:

- As we move from left to right along period, the atomic radius decreases, because
  - ★ shielding effect remains constant.
  - ★ Electrons in same valence shell increases
  - ★ effective nuclear charge increases  
(pulling electronic cloud near to the nucleus)



## 2. Trends in atomic radius:

### Definition:

- The average distance between
  - ★ the center of nucleus and
  - ★ the outermost orbit of an atomis called atomic radius.

### Units:

- Nanometre ( $1 \text{ nm} = 10^{-9} \text{ m}$ )
- Angstrom ( $1 \text{ \AA} = 10^{-10} \text{ m}$ )
- Picometre ( $1 \text{ pm} = 10^{-12} \text{ m}$ )

## Types of radius:

- 1) Covalent radius
- 2) Ionic radius
- 3) Metallic radius
- 4) Van der waals radii

