

**$Z_{eff}$  @ Effective nuclear charge**



**Example Element N has electronic configuration**  
 ${}_{11}\text{N} = 1s^2 2s^2 2p^6 3s^1$

**Quick note:**

$$\begin{aligned} Z_{eff} &= \text{proton number} - \text{inner shell electron} \\ &= 11 - 10 \\ &= +1 \end{aligned}$$

**Question 2:**

Fill in the blank:

ELEMENT	ELECTRONIC CONFIGURATION	GROUP	PERIOD	BLOCK	Valence e	$Z_{eff}$
<b>F</b>	$1s^2 2s^2 2p^5$					
<b>G</b>	$1s^2 2s^2 2p^6 3s^2$					
<b>H</b>	$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$					
<b>I</b>		13	4	p		
<b>J</b>		3	4	d		
<b>K</b>		17	3	p		

- (a) State how the elements *F* to *K* are arranged in the periodic table?  
**The elements are arranged in the order of**  
 \_\_\_\_\_
- (b) State the elements that are in the same group?  
 \_\_\_\_\_ and \_\_\_\_\_.
- (c) Why are elements *G* and *K* are in the same period?  
**Both elements have the same** \_\_\_\_\_.

- (d) Between F and K, which is one of the elements is more electronegative?  
\_\_\_\_\_.

Remember!

size of atom  $\propto$  electronegativity

- (e) Between G and H, which is one of the elements is more electronegative?  
\_\_\_\_\_.

- (f) Between F and K, which elements has higher first ionization energy (IE<sub>1</sub>)?  
\_\_\_\_\_  
\_\_\_\_\_.

Remember!

size of atom  $\propto$  IE<sub>1</sub>

- (g) Between G and H, which elements has higher first ionization energy (IE<sub>1</sub>)?  
\_\_\_\_\_.