

- The maximum number of electrons in the third energy level ( $n=3$ ) is \_\_\_\_\_.
- Pair the following elements of electronic configurations which have the same properties.

Pairs	Electronic Configuration
	A) $1s^2 2s^2 2p^6 3s^2$
	B) $1s^2 2s^2 2p^3$
	C) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6$
	D) $1s^2 2s^2$
	E) $1s^2 2s^2 2p^6$
	F) $1s^2 2s^2 2p^6 3s^2 3p^3$

- Name the elements whose electron configurations are:

Element	
	a) $1s^2 2s^2 2p^6 3s^2 3p^6$
	b) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^3$

- Name the elements whose box electron configurations are:

Element	
	<div style="display: flex; gap: 10px;"> <div style="border: 1px solid black; padding: 2px; display: inline-block;">↓↑</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">↓↑</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">↑</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">↑</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">↑</div> </div>
	<div style="display: flex; gap: 10px;"> <div style="border: 1px solid black; padding: 2px; display: inline-block;">↓↑</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">↓↑</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">↓↑</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">↓↑</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">↓↑</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">↓↑</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">↓↑</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">↓↑</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">↓↑</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">↑</div> </div>

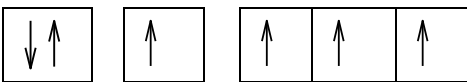
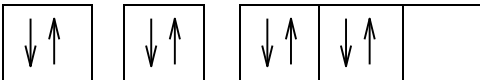


- Without looking at the periodic table, write the spdf notation (electronic configuration) of the elements with the following atomic numbers:
  - 10
  - 22
  - 28
- Identify which element have the following electronic configurations?
  - $[\text{Ar}] 4s^1$
  - $[\text{Ar}] 4s^2 3d^{10} 4p^3$

7. Write the spdf and box configuration for each of these. Do not use noble gas notation.

a) potassium

b) bromine

8. Explain in a sentence what rule/principle is being violated in the following configurations. Write the correct answer also in the space provided.

Element	
C	
Answer	
O	
Answer	
Ti	
Answer	
Br	<p>[Ar]</p> 
Answer	

9. Explain in a sentence what rule/principle is being violated in the following configurations. Write the correct answer also in the space provided.

Element	Correct answer and explanation
a) Al: $1s^2 2s^2 2p^6 3s^3 3p^1$	
b) V: $1s^2 2s^2 2p^6 3s^2 3p^6 3d^5$	
c) As: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 4d^{10} 4p^3$	

10. Write the spdf and box configuration of the following elements and ions. Do not use noble gas notation.

a) manganese

b) copper

c)  $\text{Cr}^{2+}$

d) I