

Name: _____

Period: _____

Seat#: _____

Fill in the chart below using an \uparrow and \downarrow as electrons - find the total number of electrons and use that as well as the Periodic Table to find the identity of each element.

Element	Total # e-	Orbital Filling																	Electron Config.	
		1s	2s	2p _x	2p _y	2p _z	3s	3p _x	3p _y	3p _z	4s	3d ₁	3d ₂	3d ₃	3d ₄	3d ₅	4p _x	4p _y		4p _z
Na																				
																				$1s^2 2s^2 2p^5$
H																				
S																				
																				$1s^2 2s^2 2p^6 3s^2 3p^1$
																				$1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$
Ca																				
Mg																				
																				$1s^2 2s^2 2p^6$

Element	# e-	1s	2s	2p _x	2p _y	2p _z	3s	3p _x	3p _y	3p _z	4s	3d ₁	3d ₂	3d ₃	3d ₄	3d ₅	4p _x	4p _y	4p _z	Electron Config.	
																					$1s^2 2s^2 2p^6 3s^2 3p^2$
C																					
																					$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^6$
Br																					

1) Circle which of the following orbital destinations are possible.

- a) 7s b) 1p c) 5d d) 2d e) 4f f) 5g g) 6i

2) Circle which of the following electron configurations is ruled out by the Pauli exclusion principle.

- a) $1s^2 2s^2 2p^7$ b) $1s^2 2s^2 2p^6 3s^3$ c) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{12}$ d) $1s^2 2s^2 2p^6 3s^2 3p^6$

3) Explain why the following ground-state electron configurations are not possible:

Q	Config.	Reason it is wrong
a)	$1s^2 2s^3 2p^3$	
b)	$1s^2 2s^2 2p^3 3s^6$	
c)	$1s^2 2s^2 2p^7 3s^2 3p^8$	
d)	$1s^2 2s^2 2p^6 3s^2 3p^1 4s^2 3d^{14}$	

4) Draw a section of an orbital diagram that would violate each of the following rules

Aufbau Principle	Pauli Exclusion Principle	Hund's Rule