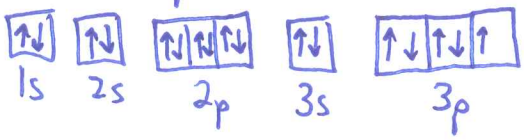
Name: CALVIN
Date:
Hour:
Favorite holiday:

Chemistry ~ Ch.5 ~ Answer sheet

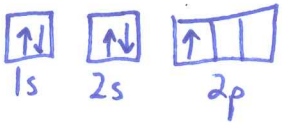
SHOW WORK! SIG DIGS! Box in answers!

21) Write electron configuration, arrow diagram, and Lewis dot diagram for: 3pts each

a) Chlorine $1s^2 2s^2 2p^6 3s^2 3p^5$

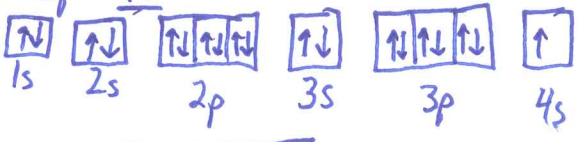


b) Boron $1s^2 2s^2 2p^1$

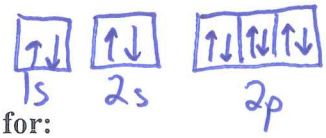


c) Potassium $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$

d) Neon $1s^2 2s^2 2p^6$



K.



22) Give Noble gas configurations for: 1pt

a) Fluorine $[He]\,2s^2 2p^5$

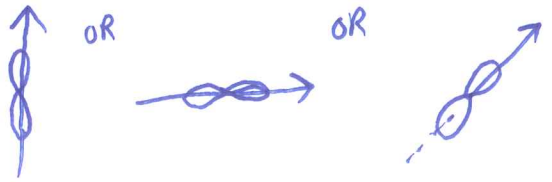
b) Radium $[Rn]\,7s^2$

c) Sulfur $[Ne]\,3s^2 3p^4$

23) Draw each orbital: 1pt

a) s orbital

b) p orbital



24) Complete the chart: 1pt

Sublevel	Orbitals	Maximum # electrons
s	1	2
p	3	6
d	5	10
f	7	14

25) Explain Aufbau's principle: 1pt

fill lowest NRG level first

26) Explain Hund's rule: 1pt

don't pair electrons until needed

27) If the speed of light is 3.00×10^{8} m/s, determine the frequency of light with a wavelength of 4.257×10^{-7} cm. SHOW WORK! UNITS! SIG DIGS! BOX ANSWER! 3pts

$C = 3.00 \times 10^{8}$ m/s

$\lambda = 4.257 \times 10^{-7}$ cm $\rightarrow 4.257 \times 10^{-9}$ m

$\nu = ?$

$C = \lambda \cdot \nu$

$\nu = \frac{C}{\lambda} = \frac{(3.00 \times 10^{8}\ m/s)}{(4.257 \times 10^{-9}\ m)} = 7.05 \times 10^{16}$ OR $/s$

28) Given that the electron configuration for phosphorus is $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^3$, answer the following. 1pt

a) How many electrons? 15

b) What is the atomic number of this element? 15

c) Give the arrow diagram for $3p^3$ ↑ ↑ ↑ (3p)

d) Phosphorus adds 3 electrons to form an octet. What is the charge of this ion? −3

e) How many electrons must be added to fill the 3rd energy level? 13 OR 18

f) What is the highest occupied energy level? 3rd

Go VIKINGS!!