Gen Chem II (CHM 202) Fall 18 Dr. Hahn MWF 10 am Quiz III 9/28 F Exam # _____

Name Key
Sign

Name _____
Print (bc can't read signature)

Please **show work on all questions** for **full credit & partial credit.** (20 total pts)

1. Given PV = nRT, if you have 1.7 Liters of a gas at T= 283.2 K at 1.2 atmospheres, how many moles of the gas do you have ? [R = 0.08206 (Liter Atmosphere)/(mole Kelvin)] (7 pts)

BA-3

$P = 1.2\,atm \quad V = 1.7\,l \quad T = 283.2\,K$

$(1.2\,atm)(1.7\,l) = n\left(0.08206 \frac{l\,atm}{mol\,K}\right)(283.2\,K)$

$n = \frac{(1.2\,atm)(1.7\,l)}{\left(0.08206 \frac{l\,atm}{mol\,K}\right)(283.2\,K)} = 0.088$

2. For n = 4, what are the possible value of ℓ = 0, 1, 2, 3 (6 pts)

$l = 0$ to $(n-1)$ $\quad n-1 = 4-1 = 3$

BA-3

3. For the element **Ge**, give the electron configuration in the format 1 s^2, $2s^2$ ….. (7 pts)

$1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 4s^2, 3d^{10}, 4p^2$

-½ pt

Extra Credit: For the above element **Ge** give the electron configuration diagram using a line to represent orbitals and up and down arrows to represent electrons in the format $\underline{\uparrow\downarrow}$ $\underline{\uparrow}$ …… (3 pts)
1s 2s

1s: ↑↓ 2s: ↑↓ 2p: ↑↓ ↑↓ ↑↓ 3s: ↑↓ 3p: ↑↓ ↑↓ ↑↓ 4s: ↑↓ 3d: ↑↓ ↑↓ ↑↓ ↑↓ ↑↓

4p: ↑ ↑ –