

Chemistry 101 -02
Winter 2005

Midterm Test #1
150 points

KEY

- _____ (1) B
_____ (2) E $d=m/v$, $V=m/d = 63.9/2.70=23.7$
_____ (3) C yes lower since it is more dense and the mass is constant.
_____ (4) D not pure element, that's all we can know for sure.
_____ (5) A
_____ (6) C
_____ (7) D
_____ (8) C
_____ (9) A
_____ (10) B $\#cm=505 \text{ nm} \times (10^{-9}\text{m/nm})(1\text{cm}/10^{-2}\text{m})=5.05 \times 10^{-5}\text{cm}$
_____ (11) E
_____ (12) D
_____ (13) E
_____ (14) A
_____ (15) C
_____ (16) E
_____ (17) A
_____ (18) D
_____ (19) A
_____ (20) C because Al^{3+} and N^{3-} have highest charges.
_____ (21) C $\text{C}_8\text{H}_6\text{O}_4$
_____ (22) B cation= X^{+3} and anion= Y^{-4} so formula = X_4Y_3 ; $\text{FW} = 4(139)+3(209)=1183$
_____ (23) C $\text{C}=(195-32)(5/9=90)$; $\text{K} = 90+273 = 363 \text{ K}$; this is above 356. so it is a gas.
_____ (24) B the density must be that of gas (4.6 g/L)
_____ (25) A $\text{A} = (10.01)(0.355) + 12.22 (0.645) = 11.4$
_____ (26) C $\text{EW}=12+2+16=30$. $117/30=4$ so it's C
_____ (27) C $\#g = (.500\text{mol})(342.3/\text{mol}) = 171$ $\text{MM}=12(12.0)+22(1.01)+11(16.0)=343.2$
_____ (28) E $\text{MM}(\text{epsom})=24.3+32.1+4(16)+7(16.0+2.0)=244 \Rightarrow \% = 126/244 \times 100\% = 51.2$
_____ (29) B assume 100g: $79.89/12 = 6.6575 \text{ molC}$; $(100-79.89)/1.01=19.9\text{molH}$; CH_3
_____ (30) D $\%H =$
 $.641\text{gH}_2\text{O}(1\text{molH}_2\text{O}/18.0\text{g})(2\text{molH}/\text{molH}_2\text{O})(1.01\text{gH}/\text{molH})(100\%)/(.520\text{g})= 13.8$

to calculate your grade, multiply your scantron grade by 6.

Class average + std deviation= 101 ± 28 (or, $67\% \pm 18\%$) (these are grades after multiplying scantron by 6)

highest = 150 (any grade above 150 is adjusted down to 150)

maximum possible = 150

letter grade: A= $23+$, B= $19+$, C= $12+$, D= $10+$ (these are based on the scantron grades)