Chemistry 105 Spring 2007 Exam 3 Form A

1) Name _____

YOU ARE TO KEEP THIS COPY OF THE TEST. YOUR NAME IS IN CASE YOU LEAVE IT BEHIND.

2) Use only a #2 pencil on the answer sheet.

3) Before starting the exam fill in your student ID# (not your SS#). Also fill in your name, course number and sign the form.

4) Fill in the test form section (A, B, C or D).

5) Do not begin the exam until you are told to.

6) **You will not get your scan sheet back!!!** Circle your answers on this exam sheet and then transfer them to the scan sheet when you are satisfied with all your answers. An answer key will be posted on the class web site and in the glass case across from the lab after the exam.

7) If atomic weights are needed use only those from the attached periodic table.

8) **No scratch paper is to be used.** Use the back of this exam sheet if necessary.

9) There are 25 equally weighted questions on this exam. You have 60 minutes to complete them.

10) **If you believe there is more than one correct answer pick only the best answer.**

Useful Data

Constants

$c = 2.998 \times 10^{8}$ m/s

$h = 6.63 \times 10^{-34}$ Js

density of H_2O = 1.00 g/mL

mass of neutron $=1.674927 \times 10^{-27}$ kg

mass of proton $=1.67262 \times 10^{-27}$ kg

$N_A = 6.022 \times 10^{23}$ amu/g or things/mole

$R = 0.08206$ atm•L•mol^{-1}•K^{-1}

Units

2.54 cm = 1 inch
3.78 L = 1 gal
1 kg = 2.20 lb
1 % = 10,000 ppm
1 hr = 60 min
1 min = 60 seconds
1 amu = 1.660540×10^{-27} kg
Molarity (M) = moles solute/L sol'n
molality (*m*)= moles solute/kg solvent

Equations

$\upsilon = c/\lambda$

$\Delta E = E_f - E_i$

$E_{photon} = h\upsilon = hc/\lambda$

$E=mc^2$,

$E = (\Delta m)\, c^2$

$\lambda = h/(mv)$

% = fraction * 100 %

ppm = fraction * 10^6 ppm

ppb = fraction * 10^9 ppb

T (in Kelvin) = 273.15 + T (in ^{o}C)

$\Pi = iMRT$

$\Delta T_b = iK_b m$

$\Delta T_f = iK_f m$

Formal Charge =(# of valence e$^-$ in free atom)
– (# valence e$^-$ assigned to atom)