1. All answers are to be submitted on the answer sheet provided. The best answer to each question should be indicated by marking with a pencil in the space provided. There is only one answer for each question. The color marked on the top of the answer sheet should match the color of this page.

2. Print your name on the computer answer sheet. Then code it by darkening the appropriate letters with a pencil. Code your LAST (family) name first.

3. Code your identification number (ASU 10-digit Affiliate ID, not your Social Security Number) in the "Identification #" section of the answer sheet. This is very important. Failure to properly code the answer sheet could result in the loss of your grade.

4. Put all calculations on the examination pages. Do not put any extra marks on the computer answer sheet.

5. Since the examination will be computer graded, read the directions for marking answers, located on the back of the answer sheet very carefully before starting.

6. The computer answer sheet will be the only one graded. It will not be returned to you but may be viewed in PS H-240 if there is any question of accuracy in grading. You may wish to circle your answer on the examination as well for future reference. You may keep the examination.

7. The exam consists of 25 multiple choice questions worth 4 points each. Make sure that your copy of the exam contains all 25 questions.

8. A periodic table is attached to the end of the examination.

9. Grades will be posted in my display case near the second-floor H-wing labs.

10. Some information you may find useful:

CHM-115-A

Exam Instructions

T = t + 273.15
PV = nRT
ΔE = q + w, ΔE = ΔH - PΔV
w = -PΔV = -Δn_gas RT
R = 0.08206 L atm/mol K = 8.314 J/mol K
ΔS_vap = ΔS_vap/boil, ΔS_fus = ΔH_fus/Т_melt
ΔS° = ΣS°_products - ΣS°_reactants
ΔH° = ΣnΔH°_products - ΣnΔH°_reactants
ΔG° = ΔH° - ТΔS°
ΔG° = ΔG° + RT ln Q
Q = πP_products/πP_reactants^b

Acid Base
HClO4 ClO4-
H2SO4 HSO4-
HI I-
HBr Br-
HCl Cl-
HNO3 NO3-
H3O+ H2O
HSO4- SO42-
H2SO3 HSO3-
H3PO4 H2PO4-
HNO2 NO2-
HF F-
HClO4 ClO4-
H2SO4 HSO4-
HI I-
HBr Br-
HCl Cl-
HNO3 NO3-
H3O+ H2O
HSO4- SO42-
H2SO3 HSO3-
H3PO4 H2PO4-
HNO2 NO2-
HF F-
HClO4 ClO4-
H2SO4 HSO4-
HI I-
HBr Br-
HCl Cl-
HNO3 NO3-
H3O+ H2O
HSO4- SO42-
H2SO3 HSO3-
H3PO4 H2PO4-
HNO2 NO2-
HF F-

Spectrochemical Series:
C > N > O > F > Cl > S > Br > I