CHEMISTRY 202
Practice Hour Exam II
Fall 2023
Dr. D. DeCoste

Name _____

Signature _____

T.A. _____

This exam contains 22 questions on 11 numbered pages. Check now to make sure you have a complete exam. You have two hours to complete the exam. Determine the **best** answer to the first 20 questions and enter these on the special answer sheet. Also, circle your responses in this exam booklet. **Show all of your work and/or provide complete answers to questions 21 and 22.**

1-20	(60 pts.)	_____
21	(30 pts.)	_____
22	(30 pts.)	_____
Total	(120 pts.)	_____

Useful Information:

- Always assume ideal behavior for gases (unless explicitly told otherwise).
- 760 torr = 1.00 atm
- R = 0.08206 Latm/molK = 8.314 J/Kmol
- K = °C + 273
- $N_A = 6.022 \times 10^{23}$

$\Delta E = q + w$ $\quad\quad$ $H = E + PV$

$\Delta S = q_{rev}/T$ $\quad\quad$ $G = H - TS$

Here are some of the formulas we used/derived in studying thermodynamics. An individual formula may or may not apply to a specific problem. This is for you to decide!

$\Delta S = nR\ln(V_2/V_1)$ $\quad$ $\Delta S = \Delta H/T$ $\quad$ $C_v = (3/2)R$ $\quad$ $C_p = (5/2)R$

$\Delta S = nC\ln(T_2/T_1)$ $\quad$ $\Delta G = \Delta G° + RT\ln(Q)$ $\quad$ $\Delta S_{surr} = -q/T$

$w = -P\Delta V$ $\quad$ $q_{rev} = nRT\ln(V_2/V_1)$ $\quad$ $q = nC\Delta T$

$$\ln(K) = -\frac{\Delta H^\circ}{R}\left(\frac{1}{T}\right) + \frac{\Delta S^\circ}{R} \qquad \ln\left(\frac{K_2}{K_1}\right) = -\frac{\Delta H^\circ}{R}\left(\frac{1}{T_2} - \frac{1}{T_1}\right)$$