

CHEMISTRY 204  
 Practice Hour Exam I  
 Spring 2024  
 Dr. D. DeCoste

Name \_\_\_\_\_

Signature \_\_\_\_\_

T.A. \_\_\_\_\_

This exam contains 23 questions on 12 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 provide complete answers to questions 21, 22 and 23.**

1-20	(60 pts.)	_____
21	(20 pts.)	_____
22	(25 pts)	_____
23	(15 pts.)	_____
Total	(120 pts)	_____

Useful Information:

$N_A = 6.022 \times 10^{23}$

$E = hc/\lambda$

$E = -2.178 \times 10^{-18} \text{ J } (Z^2/n^2) = -1312 \text{ kJ/mol } (Z^2/n^2)$

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

$h = 6.62608 \times 10^{-34} \text{ Js}$

$\Delta x \Delta p = h$

$\lambda = h/mv$

$m_e = 9.10939 \times 10^{-31} \text{ kg}$

$E_n = \frac{n^2 h^2}{8mL^2}$

$E = \frac{h^2}{8m} \left[ \frac{n_x^2}{L_x^2} + \frac{n_y^2}{L_y^2} + \frac{n_z^2}{L_z^2} \right]$

$1 \text{ pm} = 10^{-12} \text{ m}$

$1 \text{ nm} = 10^{-9} \text{ m}$

wavelength  $7 \times 10^{-7}$        $6 \times 10^{-7}$        $5 \times 10^{-7}$        $4 \times 10^{-7}$  meters

Infrared	Red	Orange	Yellow	Green	Blue	Violet	Ultra violet