

Name: _____

ch. 1, 2, 25 atoms, molecules, ions; organic chem test 40 points (3 ec) AP chemistry

Academic Honesty: The answers on this test are my own and I am using only the allowed set of notes as described in the syllabus. I have not discussed the test questions with anyone before or during the test nor have I seen the test questions prior to the exam. If you violate any of the preceding items or do not sign, your semester grade is a F.

Signature: _____

In problems involving any calculation, show your work in an organized manner, include (i) any relevant equation (or formula), (ii) conversion factor(s), (iii) put the proper units in your calculations and answer, and (iv) have the proper number of significant figures in your answer.

1. Solve [10 points]

a. $375 \text{ m}^3 = \text{ ___ mL}$

5 pts @
 $375 \text{ m}^3 \left(\frac{10^2 \text{ cm}}{\text{m}} \right)^3 \frac{\text{mL}}{\text{cm}^3} = 375 \cdot 10^6 \text{ mL}$

b. $\frac{888 \text{ cm}^2}{\text{min}} = \text{ ___ } \frac{\text{m}^2}{\text{second}}$

$\frac{888 \text{ cm}^2}{\text{min}} \frac{\text{min}}{60 \text{ sec}} \left(\frac{\text{m}}{10^2 \text{ cm}} \right)^2 = \frac{1.48 \cdot 10}{14.8 \cdot 10^4} \text{ or } 1.48 \cdot 10^3 \frac{\text{m}^2}{\text{sec}}$

2. Sketch 5 different structural isomers of cyclohexane, C_6H_{12} . [10 points]

varies

2 pts @

3. Fill-in the below table' might be hypothetical (?) isotope(s). Need not show any work. [13 points]

symbol	# protons	# electrons	# neutrons	charge	Atomic mass
$^{88}\text{Sr}^{2+}$	38	36	50	+2	88
$^{149}\text{La}^{+3}$	57	54	83	+3	140
$^{68}\text{Se}^{-2}$	34	36	34	-2	68

4. Fill-in the below table; might be a hypothetical chemical(s). [10 points]

Chemical name	Chemical formula
Tetra-arsenic octa-bromide	As_4Br_8
disilicon hex iodide	Si_2I_6
Mercury (I) hydroxide	$\text{Hg}_2(\text{OH})_2$
sodium carbonate	Na_2CO_3
tin (II) phosphite	$\text{Sn}_3(\text{PO}_3)_2$

2 pt @