Please detach and keep this page for your records.

Please write this information on the first and last page of your exam.
In Class Exam # 0.5

Name: ______________________  ID# __________
(Please put name and ID# on the last page)

There is a total of 100 points for this exam.

Answer all questions on this exam in the space provided.

[I] In the boxes provided on the subsequent page, please draw the appropriate chemical structures for the following chemical names? (45 points/3 point each) Hint: no two structures are the same!

[A] 2,2,3-trimethylbutane  [B] 1,2-dibromoethane  [C] acetone  [D] benzene

[E] trans-1,2-diethoxycyclohexane  [F] E-1,2-dibromoethylene  [G] cis-1,3-diiodocycloheptane


Question II pertains to the structures A-O from Question I. (45 points)

A. Which of the structures (A-O) are Lewis Acids?

B. Which of the structures (A-O) are Lewis Bases?

C. Which of the structures (A-O) have lone pairs of electrons? Please write the number of lone pairs in parentheses next to the corresponding letter (e.g., P(1)).

D. Which of the structures (A-O) have empty valence orbital? Please write the number of empty orbitals in parentheses next to the corresponding letter (e.g., Q(2)).

E. Which of the structures (A-O) have SP³ carbons? Please write the number of SP³ carbons in parentheses next to the corresponding letter (e.g., R(3)).
F. Which of the structures (A-O) have SP² carbons? Please write the number of SP² carbons in parentheses next to the corresponding letter (e.g., S(4)).

G. Which of the structures (A-O) have SP carbons? Please write the number of SP carbons in parentheses next to the corresponding letter (e.g., T(5)).

H. Which of the structures (A-O) are fully saturated alkane? Please write the molecular formula in parentheses next to the corresponding letter (e.g., U(C₆H₁₃)).

I. Which of the structures (A-O) have π-bonds? Please write the number of π-bonds in parentheses next to the corresponding letter (e.g., V(8)).
a) On the chair templates below, please draw each of the two diastereoisomers (e.g. stereoisomers) of 1-isopropyl-4-methylcyclohexane in their lowest energy chair conformation. (8 points)

b) In the boxes below each of the above structures, please provide unambiguous names for the two diastereoisomers. (1 point each)
Name:__________________________   ID#__________

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