CHEM 2322 Exam 2 Name:

March 19, 2024 UTEP ID #:

If required, the Exam 2 retake homework will be due Friday, March 22, before noon through <http://organic.utep.edu/quiz>, no exceptions or excuses. Put your name on these sheets so that you can recover your class answers. Expect an email from me this evening. ***Put your name and ID on your scantron and exam sheets.***

Assume any necessary workup for reactions and that chiral products are racemic.

1. Considering the steric interaction of the ortho hydrogens, how many ones are in the adjacency matrix of the following compound? 
2. 26 b. 28 c. 30 d. 32 e. not a.-d.
3. What is the determinant of the adjacency matrix for the following compound? 

a. x6-5x4+5x2-1 b. x6-5x4+6x2-1 c. x6-6x4+6x2 d. x6-6x4+5x2-1 e. not a.-d.

1. is?
2. *E,R* b. *E,S* c. *S,Z* d. *R,Z* e. not a.-d.
3. What is the -energy diagram of the compound in question 3?

a.  b.  c.  d.  e. not a.-d.

1. Which compound is most stable?

a.  b.  c.  d.  e. 

1. Photochemically moving an electron from the HOMO to the LUMO of acetone is what type of transition? 

a. n to p\* b. p to p\* c. n to s\* d. s to s\* e. not a.-d.

1. What is the major product of the following reaction? 

a.  b.  c.  d.  e. not a.-d.

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a.  b.  c.  d.  e. not a.-d.

9.-13. Classify the following as: a. aromatic b. antiaromatic c. nonaromatic d. not a.-c. Answers are repeated.

9.  10.  11.  12.  13. 

1. Complete the fourth resonance structure to determine which bond is shortest?



1. Which compound will react fourth fastest with Br2/FeBr3?

a.  b. c.  d.  e. 

1. At which position will HNO3 substitute fastest on the following compound? 
2. What is the major product of the following reaction? 

a.  b. c.  d.  e. not a.-d.

18.-22. Match the following reaction sequences, all starting with benzene, to a product below. Steps are separated by commas. Answers may be repeated.

1. CH3CH2COCl/AlCl3, Br2/FeBr3, Zn/HCl
2. CH3(CH2)2Cl/AlCl3, H2SO4, Br2/FeBr3, H3O+
3. Br2/FeBr3, CH3CH2COCl/AlCl3, H2NNH2/KOH
4. CH3(CH2)2Cl/AlCl3, HNO3/H2SO4, H2/Pd, Br2/FeBr3, NaNO2/HCl/cold, H3PO2
5. CH3CH2COCl/AlCl3, HS(CH2)3SH/H+, H2/Ni, HNO3/H2SO4, Br2/FeBr3, H2/Pd, NaNO2/HCl/cold, H3PO2

a.  b.  c.  d.  e. not a.-d.