CHEM 2325 Exam 3 Name:

November 19, 2019 UTEP ID #:

If required, the Exam 3 retake homework will be due Friday, November 22, before 5 pm 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. Show your picture ID as you turn everything in.***

***Assume any necessary workup for the following reactions.***

1. What is the third intermediate in the reaction of cyclohexanone and bromine? Charges are not shown.

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

1. What reagents are mixed to make LDA? Remember that bonds to lithium are ionic.

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

3.-7. What is the major product of the following reactions? Answers may be repeated.

1.  a. 
2.  b. 
3.  c. 
4.  d. 
5.  e. not a.-d.
6. What is the major product? 

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

1. At which carbon in the final product is there a methyl? 
2. At which carbon in the final product is there an ethyl? 

11.-15. What is the major product of the following reactions with ? Answers may be repeated.

1. H3CLi a. 
2. H2/Pd b. 
3. NaBH4 c. 
4. CH3MgCl d. 
5. LiCu(CH3)2 e. 
6. How many constitutional isomer allylic bromides does the following reaction give? 

a. 3 b. 4 c. 5 d. 6 e. not a.-d.

1. Ignoring stereochemistry, what is the overall enthalpy difference of the reaction of 3-ethylpentane, fluorine, and light going to the major mono-fluorinated product?

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Bond Disassociation Energies kcal/mole | | | | | | | | | Selectivity Ratios | | | |
|  | C-H | C-F | C-Cl | C-Br | C-I |  | X-X | H-X |  | 1° | 2° | 3° |
| 1° | 98 | 107 | 81 | 68 | 53 | F | 38 | 136 | F | 1 | 1.2 | 1.4 |
| 2° | 95 | 106 | 80 | 68 | 53 | Cl | 58 | 103 | Cl | 1 | 4 | 5 |
| 3° | 91 | 106 | 79 | 65 | 50 | Br | 46 | 88 | Br | 1 | 80 | 1700 |
|  |  |  |  |  |  | I | 36 | 71 |  |  |  |  |

a. -107 b. -109 c. -111 d. -113 e. not a.-d.

1. Which step in the previous reaction is least exothermic but not endothermic!? a. initiation

b. first propagation c. second propagation d. termination giving the same major product e. not a.-d.

1. Which compound reacts with excess sodium to make the following product? 

a.  b.  c.  d. all make product e. not a.-d.

1. What is the major product? 

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