CHEM 2324 Exam 1 ***Version A*** Name:

February 19, 2019 UTEP ID #:

If required, the Exam 1 retake homework will be due Friday, February 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.



The compound to the right is for questions 1-10 and is used to kill ants.

1. How many carbons does the given compound have?
2. 20 b. 21 c. 22 d. 23 e. not a.-d.
3. How many methylenes does the given compound have?
4. 1 b. 2 c. 3 d. 4 e. not a.-d.
5. How many secondary carbons does the given compound have?
6. 7 b. 8 c. 9 d. 10 e. not a.-d.
7. How many secondary methylenes does the given compound have?
8. 1 b. 2 c. 3 d. 4 e. not a.-d.
9. How many unsaturations are in the given compound?
10. 7 b. 8 c. 9 d. 10 e. not a.-d.
11. How many unsaturated carbons are in the given compound?
12. 13 b. 14 c. 15 d. 16 e. not a.-d.
13. How many trigonal nitrogens are in the compound?
14. 1 b. 2 c. 3 d. 4 e. not a.-d.
15. How many sp2 hybridized oxygens are in the compound?
16. 1 b. 2 c. 3 d. 4 e. not a.-d.
17. What is the ideal absolute angle between two carbon-fluorine bonds in this compound?
18. 90° b. 109.5° c. 120° d. 180° e. not a.-d.
19. How many hydrogens does the given compound have?
20. 13 b. 14 c. 15 d. 16 e. not a.-d.
21. For every sigma bond there is a(n)?

a. pi bond b. pi anti bond c. another sigma bond d. sigma anti bond e. not a.-d.

1. Considering resonance structures, which bond is 1.1 Å (Angstroms) long? 
2. Given that ant bait A (C47H70O14) is hydrogenated to give compound B (C47H82O14), how many rings does compound A have?
3. 4 b. 5 c. 6 d. 7 e. not a.-d.
4. How many total bonds does compound A from question13 have?
5. 141 b. 142 c. 143 d. 144 e. not a.-d.



1. How many sigma bonds does the following ant poison have?
2. 60 b. 61 c. 62 d. 63 e. not a.-d.
3. Which Newman projection corresponds to 2-methylpentane?
4.  b.  c.  d.  e. 
5. Given the following energies in kcal/moles (CH3/CH3 eclipsed = 4.1, CH3/H eclipsed = 1.2, H/H eclipsed = 1, CH3/CH3 gauche = 0.8), to the nearest 0.1 of a kcal/mole what is the energy difference between the following Newman projections? 
6. -7.1 b. -6.3 c. 6.3 d. 7.1 e. not a.-d.
7. What is the systematic name of the following compound?
8. 3-ethyl-2-methyl-4-(1-methylethyl)heptane b. 3,4-bis-(1-methylethyl)heptane

c. 2,5-dimethyl-3-ethyl-4-propylhexane d. 3-ethyl-2,5-dimethyl-4-propylhexane e. not a.-d.

1. Which compound is a diastereomer of a *cis* compound?
2.  b.  c.  d.  e. not a.-d.
3. Cycloheptane has the least of which type of strain? (Hint: Look at a molecular model.)
4. torsional b. face c. angle d. not a.-c.

***Do not forget to put your name, ID, and version letter (A or B) on your scantron; and your name and ID on your exam sheets. Show a picture ID as you turn in you turn everything in.***