CHEM 2324 Exam 1 Name:

June 18, 2019 UTEP ID #:

If required, the Exam 1 retake homework will be due Friday, June 21, 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.

Questions 1-10 refer to the following antifungal compound.

1. How many carbons does the given compound have?
2. 21 b. 22 c. 23 d. 24 e. not a.-d.
3. How many methines does the given compound have?
4. 9 b. 10 c. 11 d. 12 e. not a.-d.
5. How many primary carbons does the given compound have?
6. 1 b. 2 c. 3 d. 4 e. not a.-d.
7. How many primary methines 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. 9 b. 10 c. 11 d. 12 e. not a.-d.
11. How many unsaturated nitrogens are in the given compound?
12. 1 b. 2 c. 3 d. 4 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 sp hybridized carbons are in the compound?
16. 1 b. 2 c. 3 d. 4 e. not a.-d.
17. What is the ideal absolute angle between the two bonds to the sulfur in this compound? (Hint: Sulfur is below oxygen in the periodic table.)
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. Populating with electrons what type of molecular orbital (MO) causes bonds to break?

a. anti-bonding b. bonding c. non-bonding d. not a.-c.

1. The length in Å (Angstroms) of carbon-carbon bonds in benzene is?

a. 1.1 b. 1.2 c. 1.3 d. 1.4 e. 1.5

1. A prostate cancer drug (C21H15F4N5O2S) is hydrogenated to make a compound with molecular formula C21H37F4N5O2S. Assuming the valency of sulfur is 2, how many rings are in the cancer drug?
2. 1 b. 2 c. 3 d. 4 e. not a.-d.
3. How many total bonds does compound A from question13 have?
4. 61 b. 62 c. 63 d. 64 e. not a.-d.
5. How many sigma bonds does the following triglyceride have?

(Hint: All the carbon chains are the same length.)

1. 114 b. 115 c. 116 d. 117 e. not a.-d.
2. Which Newman projection corresponds to 2,3-dimethylpentane?
3.  b.  c.  d.  e. 
4. 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? 
5. -1.6 b. -0.8 c. 0.8 d. 1.6 e. not a.-d.



1. What is the systematic name of the following compound?
2. 2-propyl-3-ethylhexane b. 3-ethyl-2-propylhexane

c. 4-methyl-5-ethyloctane d. 5-ethyl-4-methylhexane e. not a.-d.

1. Which *cis* compound has the least energy?
2.  b.  c.  d.  e. 
3. What is the smallest cycloalkane with little angle strain but much tortional strain?
4. cyclopropane b. cyclobutane c. cyclopentane d. cyclohexane e. not a.-d.

***Put your name and ID on your scantron and exam sheets. Show a picture ID as you turn everything in.***