CHEM 2322 Exam 1 Name:

February 13, 2024 UTEP ID #:

If required, the Exam 1 retake homework will be due Friday, February 16, 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. ***Put your name and ID on your scantron and exam sheets.***

Assume any necessary workup at the end or between the steps of the following reaction(s).

1.-2. Match each set of reagents reacting with  to a product below. Answers may be repeated.

1. Hydrobromic acid 2. (butyl)4N+ -Br in CH2Cl2

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

3. What is the mechanism of the following reaction? 

a. SN1 b. SN2 c. E1 d. E2 e. not a.-d.

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

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

5. Which is the second most stable alkene?

a.  b.  c.  d.  e. 

6.-10. Match each set of reagents on the left reacting with to a product on the right. Answers may be repeated. means both wedge and slash.

6. hydroiodic acid (HI) a. 

7. hydroiodic acid and heat b. 

8. sodium iodide in acetone c. 

9. sodium methoxide d. 

10. potassium *t*-butoxide e. not a.-d.

11. Which compound does not cause a color change when reacted with H2CrO4?

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

12. What is the product of the following reactions? 

a. 4-methylhexanal b. 3-methylpentanal c. 2-methypentanal d. 4-methylpentanal e. not a.-d.

13. What is the best name for the following compound? 

a. (3*R,4E*)-3-butylhex-4-en-1-yne b. (3*S,4E*)-3-butylhex-4-en-1-yne

c. (3*R,4Z*)-3-butylhex-4-en-1-yne d. (3*S,4Z*)-3-butylhex-4-en-1-yne e. not a.-d.

14.-17. Match each set of reactions on the left to a product on the right. Answers may be repeated. Chiral products are racemic.

14. + Hg++ catalysis, H2O, NaBH4 a. 

15. + BH3, NaO2H b. 

16. + RCO3H, LiAlH4 c. 

17. + Br2/H2O, NaOH, LiAlH4 d.  e. not a.-d.

18.-21. Match each set of reactions on the left to a product on the right. Answers may be repeated. Chiral products are racemic.

18.+ H2/Pd/Lindlar, RCO3H, H3O+ a. 

19. + Na in NH3, OsO4/H2S b. 

20. + H2/Pd c. 

21. + H2/Pd/Lindlar, OsO4/H2S d.  e. not a.-d.

22. What is the major product of the following reaction? + Na in NH3, CH2N2

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