

NAME: _____

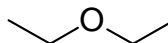
If you object to your graded script being placed in a box outside my office then check here _____

(1-10) are True or False.

- 1) Benzene is chemically less reactive than cyclohexene.
- 2) Cyclopentane has less ring strain than an epoxide.
- 3) 1,3-Butadiene contains 4 sp^2 -hybridized carbons.
- 4) Kinetic products are always formed more quickly than thermodynamic products.
- 5) Normal ethers are more reactive than epoxides because of their ring strain.

6)

The oxygen atom in this ether is sp hybridized

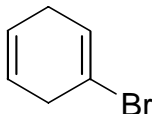


7)



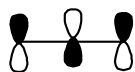
is aromatic

8)



is aromatic

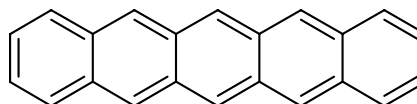
9)



represents an antibonding Molecular Orbital

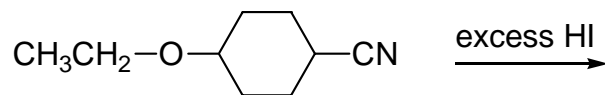
10)

This compound is aromatic

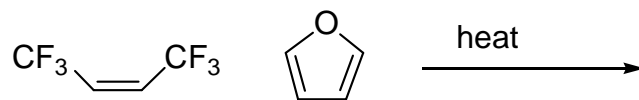


11-14) Give the products for the following reactions (and indicate stereo/regiochemistry where applicable).

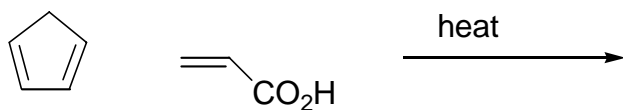
11)



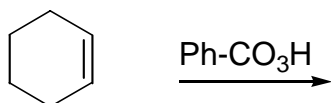
12)



13)



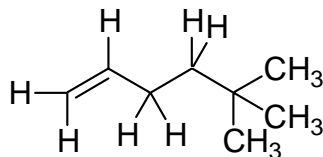
14)



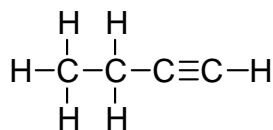
15) Give two reasons why you are taught about Molecular Orbital Theory?

16-17) Circle the C-H bond that has the lowest bond dissociation energy.

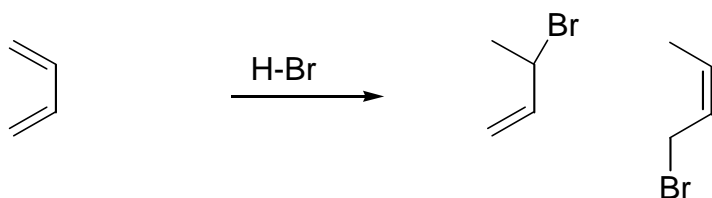
16)



17)



18-19) Mechanistically account for both observed products in the below reaction (i.e. using arrows to indicate electron movement).



20) Which is the kinetic product in the above electrophilic addition reaction?

BONUS QUESTION for 1 extra point

Explain how you could adjust the reaction conditions to generate a higher ratio of the kinetic product.

NAME:

CHRIS P. BACON

If you object to your graded script being placed in a box outside my office then check here _____

(1-10) are True or False.

1) Benzene is chemically less reactive than cyclohexene. T

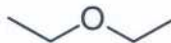
2) Cyclopentane has less ring strain than an epoxide. T

3) 1,3-Butadiene contains 4 sp^2 -hybridized carbons. T

4) Kinetic products are always formed more quickly than thermodynamic products. T

5) Normal ethers are more reactive than epoxides because of their ring strain. F

6) The oxygen atom in this ether is sp hybridized



F

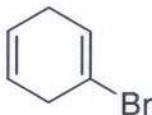
7)



is aromatic

T

8)



is aromatic

F

9)

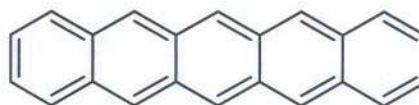


represents an antibonding Molecular Orbital

T

10)

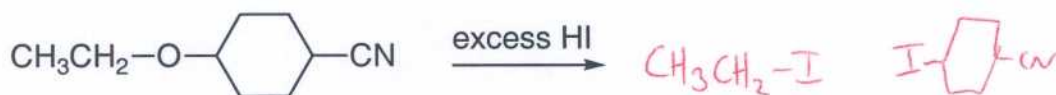
This compound is aromatic



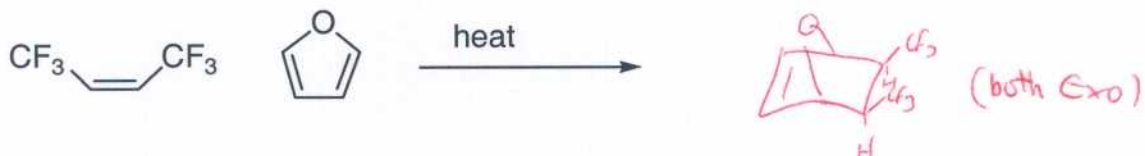
T

11-14) Give the products for the following reactions (and indicate stereo/regiochemistry where applicable).

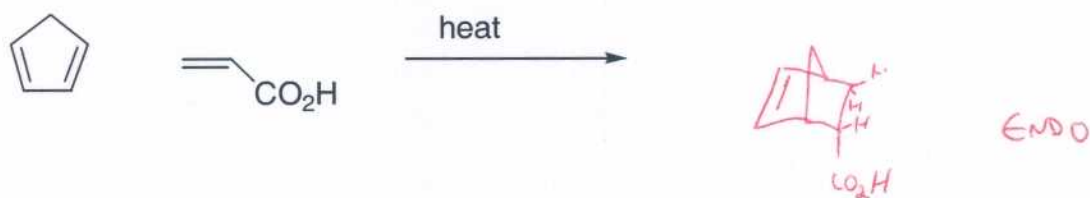
11)



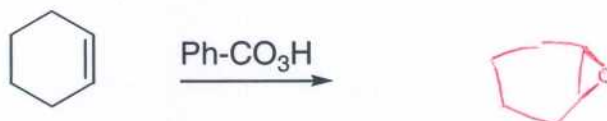
12)



13)



14)

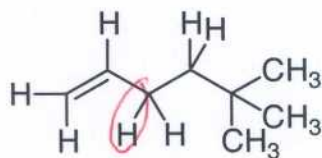


15) Give two reasons why you are taught about Molecular Orbital Theory?

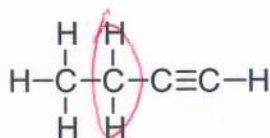
- 1) Explains "allowed" and "forbidden" pericyclic reactions
- 2) Explains aromaticity & antiaromaticity
- 3) Explains conjugation & delocalized π bonding

16-17) Circle the C-H bond that has the lowest bond dissociation energy.

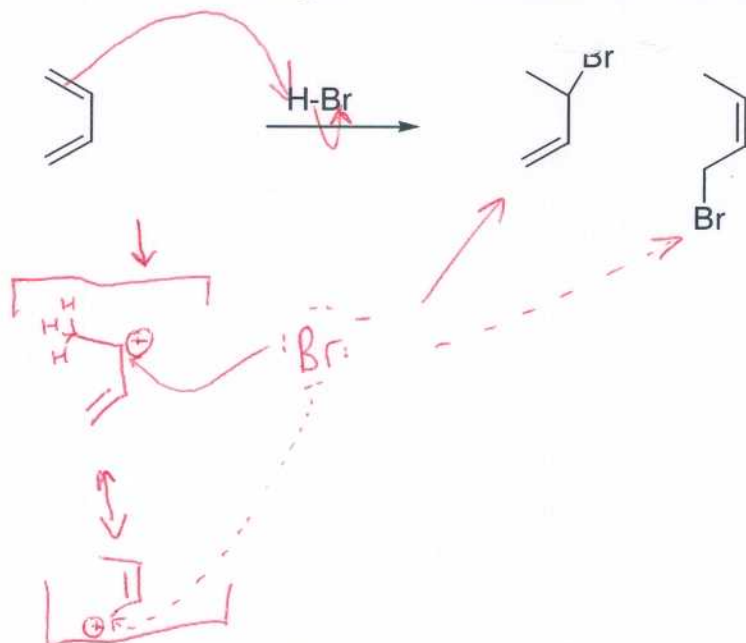
16)



17)



18-19) Mechanistically account for both observed products in the below reaction (i.e. using arrows to indicate electron movement).



20) Which is the kinetic product in the above electrophilic addition reaction?



BONUS QUESTION for 1 extra point

Explain how you could adjust the reaction conditions to generate a higher ratio of the kinetic product.

Lower the reaction temperature