

First Name _____ Last Name _____
 Student ID _____ Signature _____

Chemistry 161, A1
Quiz - 08 October 2004
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Instructions

Complete the answer sheet:

Name _____

ID Number _____

Special Code J, K :

Enter the numbers you see in a square box at the bottom of page #2.

Select the **best possible answer** for questions 1 – 12 and fill the corresponding circle in the bottom part of the answer sheet.

Assume there is only one correct answer.

You must hand in **both** the answer sheet and the question sheets.

But only the answer sheet will be evaluated.

Closed book exam; no calculators.

Time allowed: 20 min.

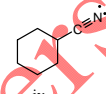
There are **12** questions

1. In the ground state, which atom(s) has (have) three singly occupied p orbitals?

"Mini Periodic Table: H, He, Li, Be, B, C, N, O, F, Ne"

- a) N ☒ b) N & O c) B & C d) B e) C

2. Which of the following contains exactly two (2) atoms that are sp^2 hybridized?



- a) i, ii b) i, iii ☒ c) i, iv d) ii e) i, iii, iv

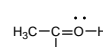
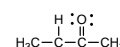
3. Which of the following terms is out of place?

nucleophile lone pair filled orbital electron source H^+ donor

- a) b) c) ☒ d) e)

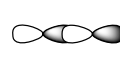
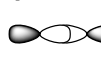
4. Which of the following structures have an overall positive charge?

(all non-bonding electrons are shown). Remember: best answer!



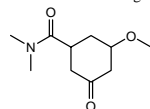
- a) i, ii, iii b) ii, iii, iv c) i, ii, iv ☒ d) i, ii e) iii, iv

5. Which of the following comes closest to represent a π^* molecular orbital? (antibonding)



- a) b) ☒ c) d) e)

6. The following structure contains the functional groups indicated below. (There might be more)



ketone & alcohol

ether & amide

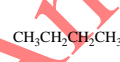
ester & ketone

ester & ether

amide & ester

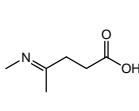
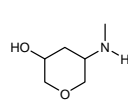
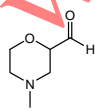
- a) b) ☒ c) d) e)

7. Which of the following are pairs of constitutional isomers?



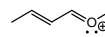
- a) i & ii b) i & iii c) ii & iii d) ii & v e) iii & v ☒

8. Which of the following have the molecular formula $C_6H_{11}NO_2$?

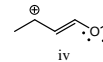


- a) i, ii b) ii, iii c) i, iii ☒ d) all e) none

9. Consider



Which of the above are related to the above by resonance? All lone pairs are shown. (Assume carbon atoms having a formal charge of +1 or -1 are trivalent)



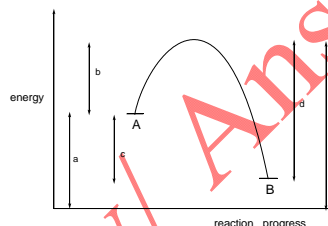
- a) i, ii b) ii, iii c) i only d) iii only e) iii, iv ☒

10. Which type of arrow is used in homolytic reactions?



- a) b) ☒ c) d) e)

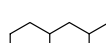
11. The following represents the reaction diagram for a simple equilibrium reaction.



Which arrow represents the activation energy for the forward reaction $A \rightarrow B$?

- a) b) ☒ c) d) e)

12. Which of the following contains an isobutyl group?



- a) ☒ b) c) d) e)