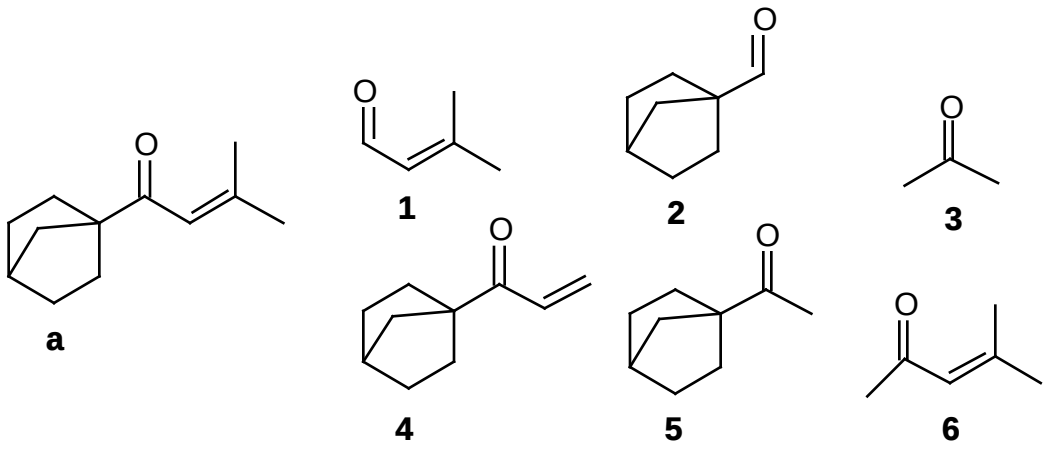
"Grade or Education" = 1

CHEM 2060/01
Summer 18
Final Exam
Chapters 1 - 17

1. Pick the choice which correctly describes how compound a can be synthesized via an aldol condensation using reagents that have the numbered structures shown below.



__ A. Compound a can be synthesized by heating compound 6 and compound 2 together in a strongly basic aqueous solution.

__ B. Compound a can be synthesized by heating compound 1 and compound 2 together in a strongly basic aqueous solution.

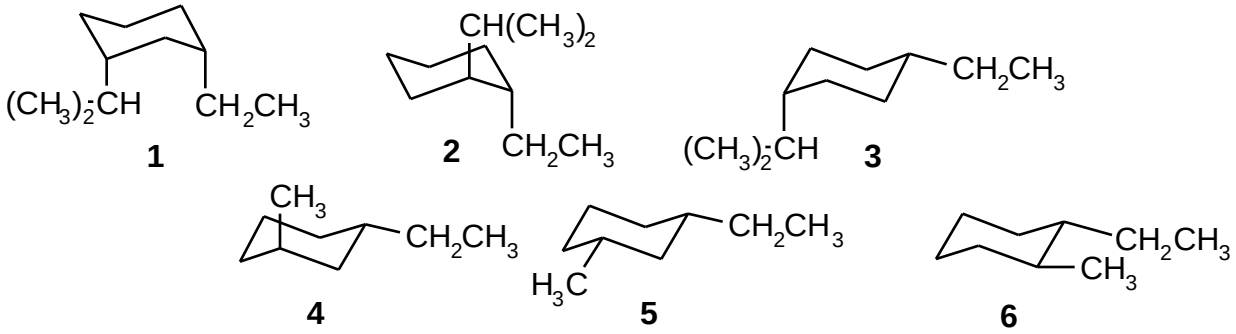
__ C. Compound a can be synthesized by heating compound 5 and compound 6 together in a strongly basic aqueous solution.

__ D. Compound a can be synthesized by heating compound 5 and compound 3 together in a strongly basic aqueous solution.

__ E. Compound a can be synthesized by heating compound 4 and compound 3 together in a strongly basic aqueous solution.

Rationale:
Problem 13.45

2. Draw the two chair conformers of each of the cyclohexanes named in the multiple choices. Examine the numbered figures below to see if the structure of the more stable conformer of the cyclohexane named in one of the multiple choices matches the structure number given in that multiple choice. Pick the choice which correctly matches all of the feature of the structure of the more stable conformer of the named cyclohexane with a numbered figure. (Hint: check to see if cis or trans is correct, check the substituent names, check the position numbers, and check the axial and equatorial positions of the substituents.)



__ A. 4 is the structure of the more stable conformer of trans-1-ethyl-3-methylcyclohexane.

__ B. 3 is the structure of the more stable conformer of cis-1-ethyl-4-isopropylcyclohexane.

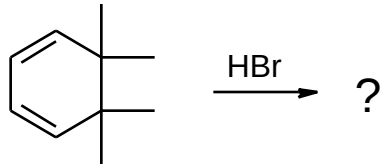
__ C. 1 is the structure of the more stable conformer of cis-1-ethyl-3-isopropylcyclohexane.

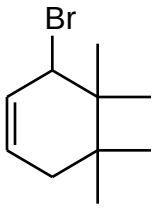
__ D. 6 is the structure of the more stable conformer of cis-1-ethyl-2-methylcyclohexane.

__ E. 2 is the structure of the more stable conformer of trans-1-ethyl-2-isopropylcyclohexane.

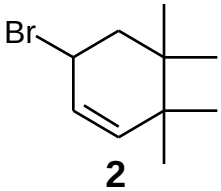
Rationale:
Problem 3.57

3. What are the products of the reaction shown below, assuming that one equivalent of HBr is used in the reaction?





1



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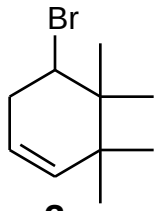

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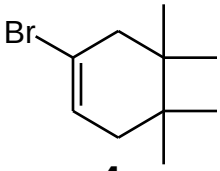


4

__ A. 1 and 3

__ B. 2 and 4

__ C. 3 and 4

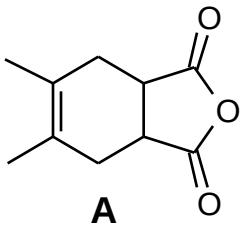
__ D. 2 and 3

__ E. 1 and 2

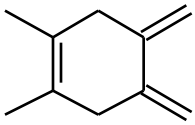
Rationale:

Problem 7.19

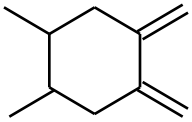
4. How could the compound with structure A shown below be synthesized using a Diels-Alder reaction?



A



1



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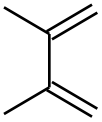

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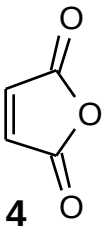
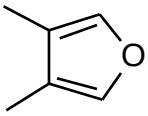
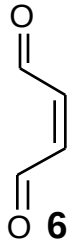


4



5



6

__ A. React compound 5 with compound 6.

__ B. React compound 1 with compound 4.

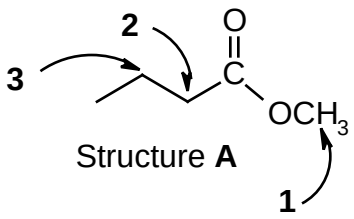
__ C. React compound 1 with compound 6.

__ D. React compound 2 with compound 4.

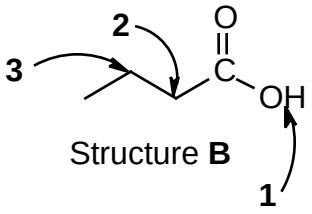
__ E. React compound 3 with compound 4.

Rationale:
Problem 7.53

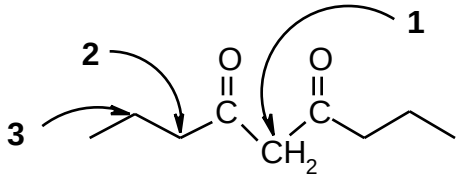
5. Identify the most acidic hydrogen(s) in each of the compounds whose structures are shown below. Pick the choice which correctly identifies the most acidic hydrogen(s) in one of these compounds.



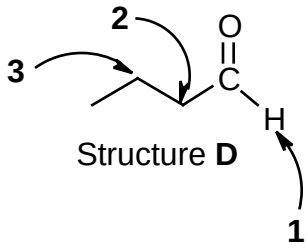
Structure **A**



Structure **B**



Structure **C**



Structure **D**

__ A. In Structure D the hydrogen pointed to by arrow 1 is the most acidic.

__ B. In Structure A the hydrogens attached to the carbon pointed to by arrow 3 are the most acidic.

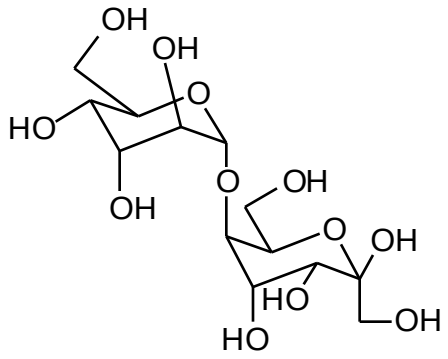
__ C. In Structure A the hydrogens pointed to by arrow 1 are the most acidic.

__ D. In Structure B the hydrogens attached to the carbon pointed to by arrow 2 are the most acidic.

__ E. In Structure C the hydrogens attached to the carbon pointed to by arrow 1 are the most acidic.

Rationale:
Problem 13.1

6. Choose the correct designations for the type of glycosidic bond and types of monosaccharide units that appear in the disaccharide whose structure is shown below.



__ A. β-1,4 glycosidic bond joining a ketohexose to an aldohexose

__ B. β,α-1,3 glycosidic bond joining a ketoheptose to an aldohexose

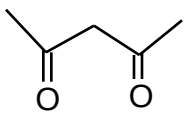
__ C. α-1,5 glycosidic bond joining a ketoheptose to an aldohexose

__ D. α-1,4 glycosidic bond joining a ketoheptose to an aldohexose

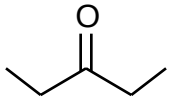
__ E. β-1,5 glycosidic bond joining a ketohexose to an aldohexose

Rationale:
Problem 14.25

7. Pick the choic which gives the structure numbers of the following compounds arranged in order from strongest acid to weakest acid.



1



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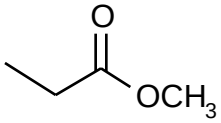

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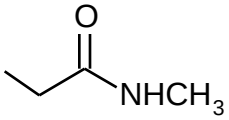


4

__ A. 1 > 3 >2 >4

__ B. 3 > 4 > 1 > 2

__ C. 2 > 4 > 3 > 1

__ D. 1 > 2 > 3 > 4

__ E. 4 > 3 > 1 > 2

Rationale:
Problem 13.25

8. For each of the acid-base reactions in the multiple choices, compare the pKa values of the acids on either side of the reaction arrows to see if the equilibrium for the reaction lies in the direction indicated (ie. to the right). Pick the choice which correctly indicates the direction the reaction shifts (from standard conditions) to achieve equilibrium.

Formula	pKa		Formula	pKa		Formula	pKa
HCl	-7		CH_3OH	15.5		CH_3NH_2	40
H_3O^+	-1.7		$CH_3OH_2^+$	-2.5		$CH_3NH_3^+$	10.7
H_2O	15.7		CH_3COOH	4.8		NH_4^+	9.4

__ A. $NH_3 + H_2O \rightarrow NH_4^+ + HO^-$

__ B. $CH_3COOH + NH_3 \rightarrow CH_3COO^- + NH_4^+$

__ C. $CH_3NH_2 + HO^- \rightarrow CH_3NH^- + H_2O$

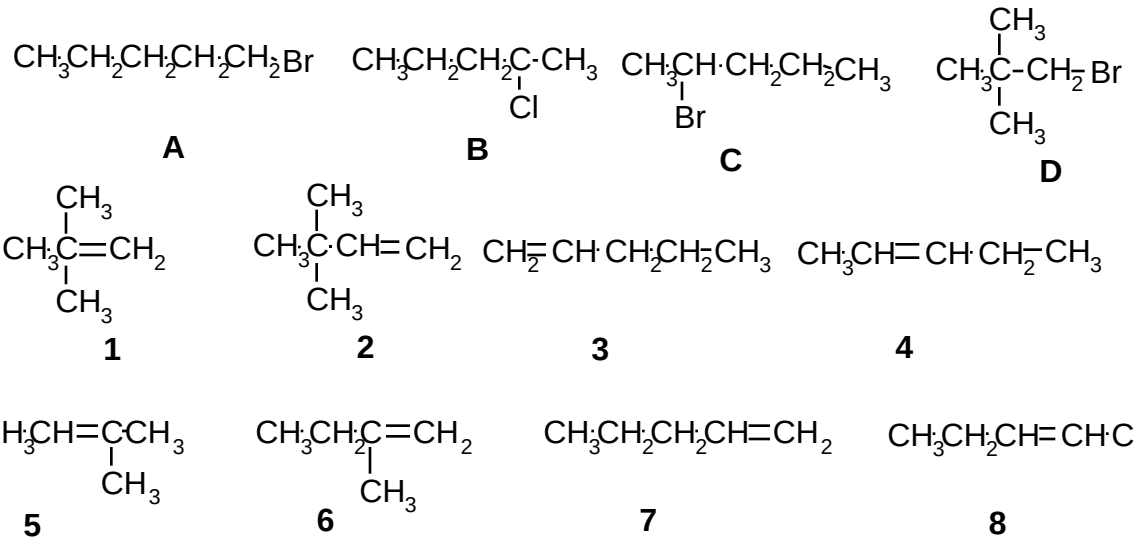
__ D. $CH_3NH_2 + H_2O \rightarrow CH_3NH_3^+ + HO^-$

__ E. $CH_3COOH + H_2O \rightarrow CH_3COO^- + H_3O^+$

Rationale:

Problem 2.14

9. What would be the major elimination product obtained from the E2 reaction of each of the alkyl halides shown below (structures A - D) with hydroxide ion? Pick the correct statement from the multiple choices.



A **B** **C** **D**

1 **2** **3** **4**

5 **6** **7** **8**

__ A. Elimination of A with hydroxide gives product 4.

__ B. Elimination of B with hydroxide gives product 3.

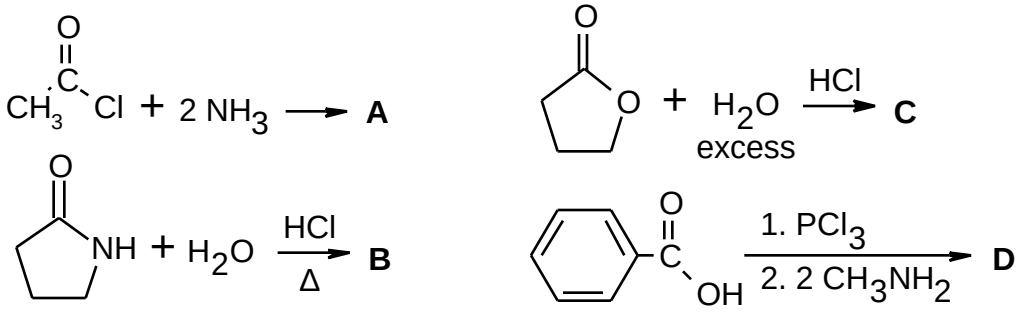
__ C. Elimination of D with hydroxide gives no reaction.

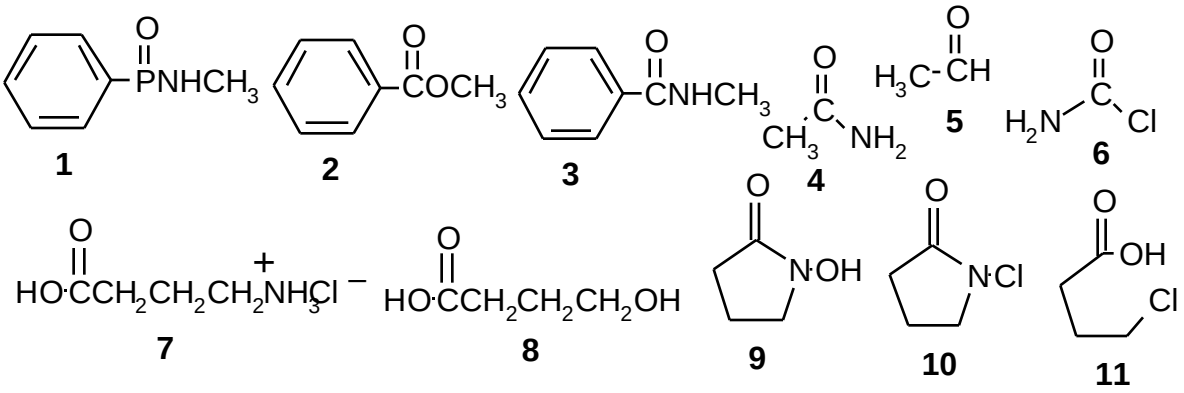
__ D. Elimination of D with hydroxide gives product 1.

__ E. Elimination of C with hydroxide gives product 3.

Rationale:
Problem 8.18

10. What are the products of the following reactions? Find the structures of these products from among the numbered structures and pick the choice which indicates a correct product selection.





1 **2** **3** **4** **5** **6** **7** **8** **9** **10** **11**

__ A. A is 6

__ B. C is 8

__ C. D is 2

__ D. B is 10

__ E. B is 9

Rationale:
Problem 11.49

11. Draw the products obtained from the S_N2 reaction of the alkyl halides named in the multiple choices below. Name these products. Which choice correctly names the product of the specified reaction?

__ A. 3-iodopentane and hydroxide ion gives 3-iodobutanol.

__ B. (R)-2-bromobutane and methoxide ion gives (S)-3-methoxypentane.

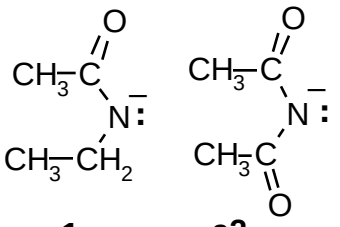
__ C. 2-bromopentane and methoxide ion gives 2-bromo-2-methoxypentane.

__ D. (R)-2-bromopentane and methoxide ion gives (R)-2-methoxypentane.

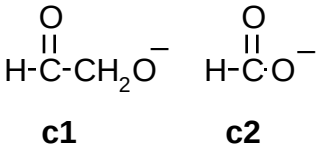
__ E. bromocyclohexane and hydroxide ion gives cyclohexanol.

Rationale:
Problem 8.5

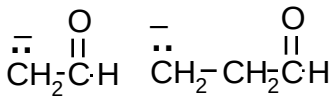
12. Which species in each pair is more stable? Pick the correct statement from the multiple choices.



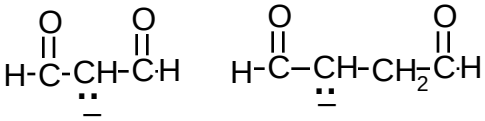
a1 **a2**



c1 **c2**



b1 **b2**



d1 **d2**

__ A. c1 is more stable than c2

__ B. None of the other choices is correct.

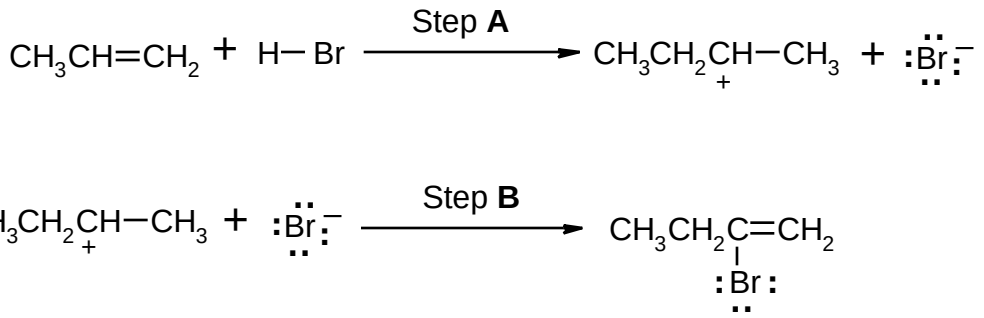
__ C. d1 is more stable than d2

__ D. b2 is more stable than b1

__ E. a1 is more stable than a2

Rationale:
Problem 7.45

13. Identify the electrophile and the nucleophile in each of the two reaction steps in the two-step process shown below, and then draw curved arrows on the test page to illustrate the bond-making and bond-breaking processes in these two reaction steps. Choose the answer which is completely correct about one of these two reaction steps



__ A. In Step A the rightmost reactant (H-Br) is the nucleophile and the alkene is the electrophile. The tail of a curved arrow originates at the H in H-Br and this arrow points to the rightmost carbon in the alkene.

__ B. In Step A the leftmost reactant (the alkene) is the nucleophile and the H-Br is the electrophile. The tail of a curved arrow originates at the double bond on the alkene and this arrow points to the hydrogen atom in H-Br

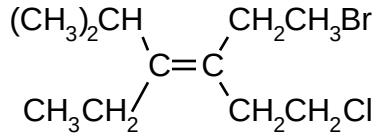
__ C. In Step B the leftmost reactant (the cation) is the nucleophile and the Br^- is the electrophile. The tail of a curved arrow originates at a lone pair of electrons on Br^- and this arrow points to the positively-charged carbon in the cation on the left.

__ D. In Step B the leftmost reactant (the cation) is the electrophile and the Br^- is the nucleophile. The tail of a curved arrow originates at the positively-charged carbon and this arrow points to the Br^- ion.

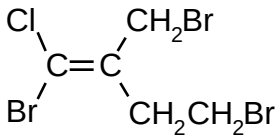
__ E. In Step B the leftmost reactant (the cation) is the nucleophile and the Br^- is the electrophile. The tail of a curved arrow originates at the positively-charged carbon and this arrow points to the Br^- ion.

Rationale:
Problem 6.29

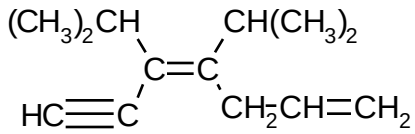
14. Figure out whether each of the letter-referenced structures below has the E configuration or the Z configuration. Choose the correct statement about these structures from the multiple choices.



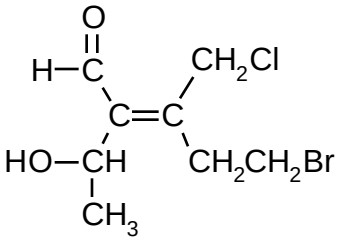
A



C



B



D

__ A. B has the Z configuration.

__ B. A has the E configuration.

__ C. D has the Z configuration.

__ D. C has the Z configuration.

__ E. None of the other choices is correct.

Rationale:
Problem 4.54

15. Which of the choices is TRUE about the protein structural hierarchy level involved in the structural features described?

__ A. Disulfide bridges can be involved in creating the 1^0 structure of a protein.

__ B. The α and β subunits of hemoglobin fit together to make a 3^0 structure.

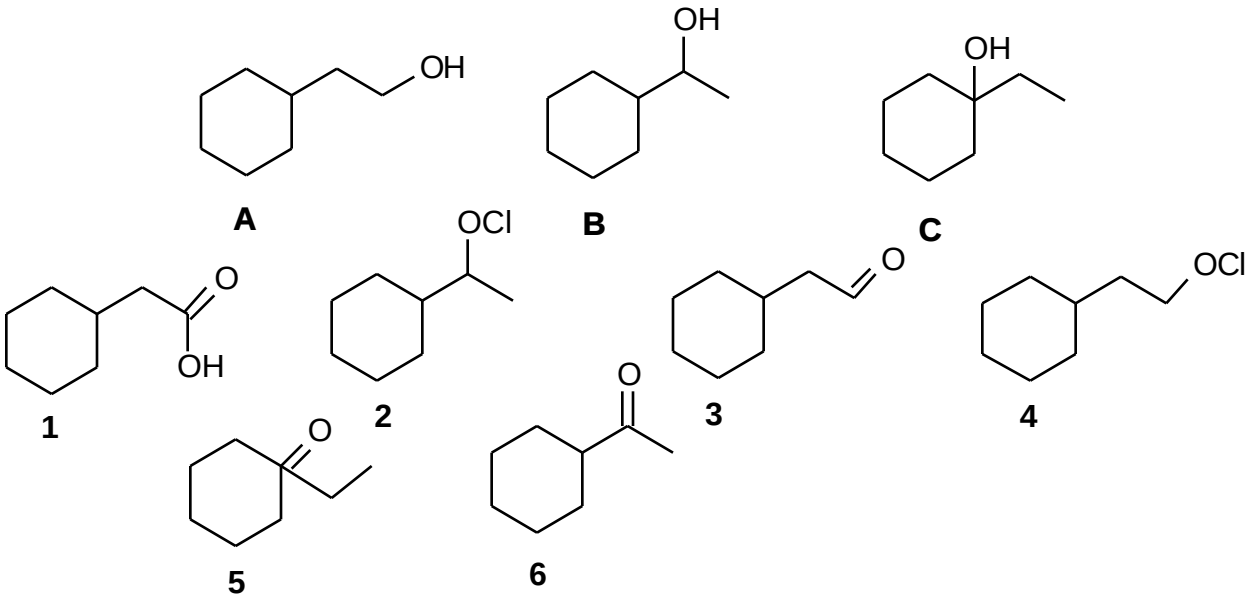
__ C. Salt bridges help to create the 2^0 structure of a protein.

__ D. Hydrophobic interactions are involved in the 1^0 and 2^0 structures of a protein.

__ E. Phe-Val sidechain interactions can be involved in creating 3^0 and 4^0 structure.

Rationale:
Problem 16.29

16. What products will be obtained from the reaction of 2-cyclohexylethanol (A below), 1-cyclohexylethanol (B below), and 1-ethylcyclohexanol (C below) with HOCl? Find the structures of the products of these reactions among the numbered figures below. Choose the correct statement from the multiple choices.



__ A. B and HOCl will give no reaction.

__ B. A and HOCl form product 1.

__ C. C and HOCl will give no reaction.

__ D. B and HOCl form product 2.

__ E. A and HOCl form product 4.

Rationale:
Problem 9.14

17. Use the Genetic Code Table at the back of this quiz to determine the sequence of AMINO ACIDS coded by the m-RNA sequence 5'-GAU AUU CUC UGA-3'. Choose this AMINO ACID sequence from the multiple choices below.

__ A. Gly Thr Pro Stop

__ B. 5'-GGU ACU CCC UGA-3'

__ C. Asp Thr Pro Stop

__ D. Asp Ile Leu Stop

__ E. 5'-CCA TGA GGG ACT-3'

Rationale:
Problem 17.8

18. Choose the CORRECT structure AND ω designation of arachidonic acid ($C_{20:4}^{\Delta 5, 8, 11, 14}$).

__ A. Arachidonic acid is an ω3 acid with the structure $CH_3(CH_2)_4(CH{=}CHCH_2)_4(CH_2)_2COOH$.

__ B. Arachidonic acid is an ω6 acid with the structure $CH_3(CH_2)_3(CH_2CH{=}CH)_4(CH_2)_4COOH$.

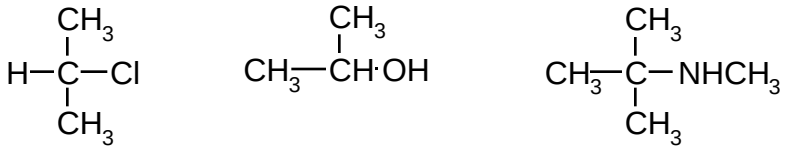
__ C. Arachidonic acid is an ω3 acid with the structure $CH_3(CH_2)_5(CH{=}CHCH_2)_4CH_2COOH$.

__ D. Arachidonic acid is an ω6 acid with the structure $CH_3(CH_2)_4(CH_2CH{=}CH)_4(CH_2)_2COOH$.

__ E. Arachidonic acid is an ω6 acid with the structure $CH_3(CH_2)_4(CH{=}CHCH_2)_4(CH_2)_2COOH$.

Rationale:
Problem 15.16

19. Figure out whether the functional group in each of the lettered structures below is primary, secondary, or tertiary. Choose the correct statement from the multiple choices.



A **B** **C**

__ A. The functional group in structure C is primary.

__ B. The functional group in structure C is tertiary.

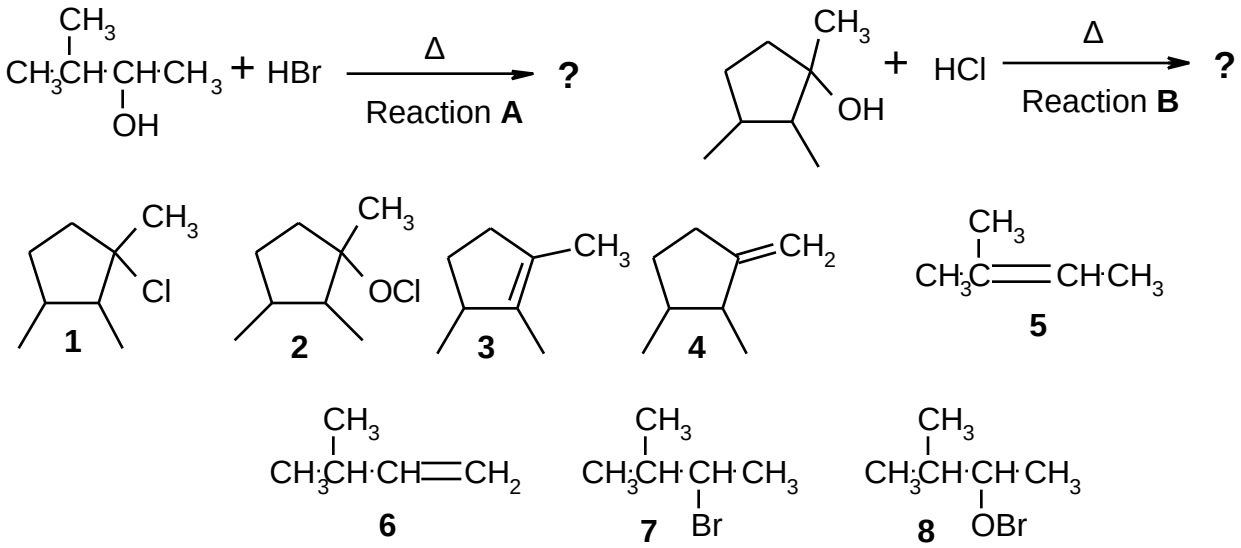
__ C. The functional group in structure A is primary.

__ D. The functional groups in structures A, B, and C are all secondary.

__ E. The functional group in structure B is tertiary.

Rationale:
Problem 3.19

20. What are the major products of the reactions shown below?



__ A. The major product of Reaction A is 7 and the major product of Reaction B is 1.

__ B. The major product of Reaction A is 8 and the major product of Reaction B is 2.

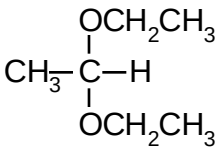
__ C. The major product of Reaction A is 5 and the major product of Reaction B is 4.

__ D. The major product of Reaction A is 6 and the major product of Reaction B is 4.

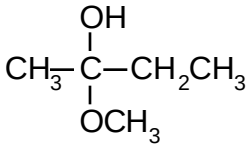
__ E. The major product of Reaction A is 5 and the major product of Reaction B is 3.

Rationale:
Problem 9.5

21. Which of the following are hemiacetals? Which of the following are acetals? Pick the correct statement from the multiple choices.



1



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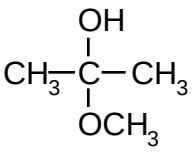

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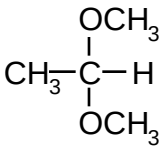
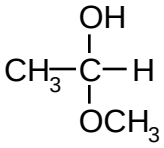


2



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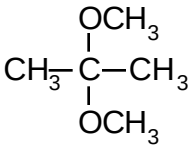


6

__ A. 2 is a hemiacetal.

__ B. 4 is an acetal.

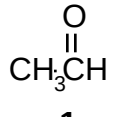
__ C. 6 is an acetal.

__ D. 1 is an acetal.

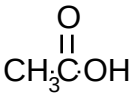
__ E. 3 is a hemiacetal.

Rationale:
Problem 12.23

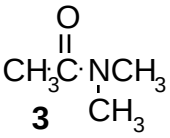
22. What products would be formed by the reaction of acetyl chloride with the reagents specified in the multiple choices? Pick the choice which gives a correct product of the specified reaction.



1



2



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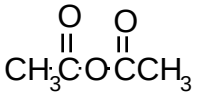

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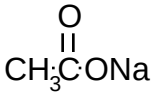

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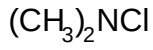
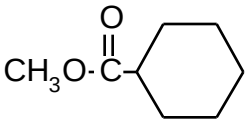
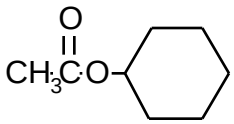


6



7



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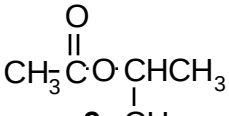

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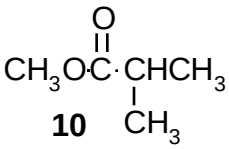


10

__ A. 4 would be formed from the reaction of acetyl chloride and sodium acetate.

__ B. 1 would be formed from the reaction of acetyl chloride and aqueous HCl.

__ C. 10 would be formed from the reaction of acetyl chloride and isopropyl alcohol.

__ D. 7 would be formed from the reaction of acetyl chloride and cyclohexanol.

__ E. 6 would be formed from the reaction of acetyl chloride and excess dimethylamine.

Rationale:
Problem 11.34

23. Find the amino acids mentioned in the choices below in the amino acid tables at the back of this quiz. Figure out which pole (+ or -) each amino acid would migrate to in an electric field at blood pH 7.4. Which of the choices below is CORRECT?

__ A. Glutamic acid will migrate to the **–** pole at a pH of 7.4.

__ B. Histidine will migrate to the **+** pole at a pH of 7.4.

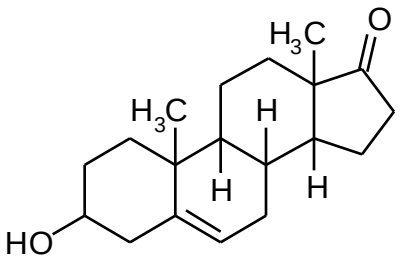
__ C. Aspartic acid will not migrate to either pole at a pH of 7.4.

__ D. Histidine will not migrate to either pole at a pH of 7.4.

__ E. Aspartic acid will migrate to the **–** pole at a pH of 7.4.

Rationale:
Problem 16.4

24. Shown in the figure below is the molecular structure of DHEA, a legal nutritional supplement which is popular with bodybuilders. What is the maximum number of stereoisomers DHEA can have?



DHEA

__ A. 128

__ B. 256

__ C. 1024

__ D. 64

__ E. 512

Rationale:
Problem 4.32(b)

25. Which of the following statements about carbohydrates is CORRECT?

__ A. Type 1 diabetes occurs when the liver fails to respond to insulin and thereby allows blood sugar levels to get too high.

__ B. An aldose is a sugar which is an aldehyde in its open-chain form.

__ C. A Fischer projection is a cyclic representation of a sugar drawn as either a 5-membered or a 6-membered ring.

__ D. Glycogen is a branched carbohydrate found in potato starch which has β1,4 glycosidic linkages and branches at carbon 6

__ E. Polysaccharides are polymers of amino acids linked by glycosidic bonds.

Rationale:
Problem 14.17

26. What is the m-RNA sequence which is generated from the template DNA sequence:
3'-GTA ACG TCG CTT-5'?

__ A. 5'-GUA ACG UCG CUU-3'

__ B. 5'-CAU UGC AGC GAA-3'

__ C. 5'-GTA ACG TCG CTT-3'

__ D. 3'-GUA ACG UCG CUU-5'

__ E. 3'-GTA ACG TCG CTT-5'

Rationale:
Problem 17.12

27. For each of the acidic compounds shown below whose pK_a values are shown below them figure out which form predominates at the pH values given in the multiple choices and pick the choice which is correct.

CH_3COOH	$CH_3CH_2\overset{+}{N}H_3$	CF_3CH_2OH
$pK_a = 4.8$	$pK_a = 11.0$	$pK_a = 12.4$

__ A. CH_3COOH is predominantly in the CH_3COO^- form if pH = 7.4.

__ B. $CH_3CH_2NH_3^+$ is predominantly in the $CH_3CH_2NH_3^+$ form if pH = 14.

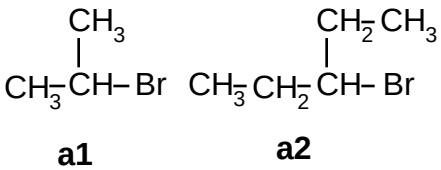
__ C. CF_3CH_2OH is predominantly in the $CF_3CH_2O^-$ form if pH = 6.

__ D. CH_3COOH is predominantly in the CH_3COO^- form if pH = 3.0.

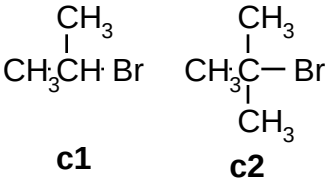
__ E. CF_3CH_2OH is predominantly in the CF_3CH_2OH form if pH = 14.

Rationale:
Problem 2.44

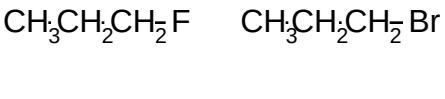
28. Which alkyl halide in each of the pairs of structures shown below would you expect to be more reactive in an S_N2 reaction with a given nucleophile? Pick the choice which gives the correct answer for one of these pairs.



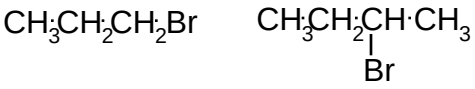
a1 **a2**



c1 **c2**



b1 **b2**



d1 **d2**

__ A. b2 is more reactive than b1 in an S_N2 reaction.

__ B. d2 is more reactive than d1 in an S_N2 reaction.

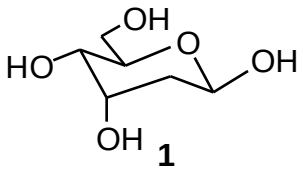
__ C. c2 is more reactive than c1 in an S_N2 reaction.

__ D. a2 is more reactive than a1 in an S_N2 reaction.

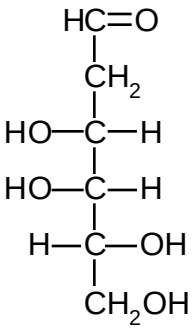
__ E. None of the other choices is correct.

Rationale:
Problem 8.36

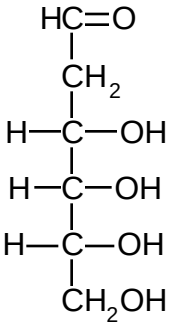
29. Choose the number (2 - 6) corresponding to the structure of the open-chain form of the cyclic saccharide whose structure is numbered 1 below. Structures 2 - 6 are Fischer projections.



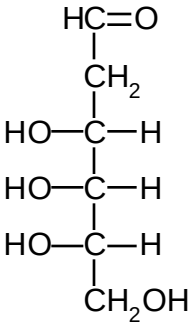
1



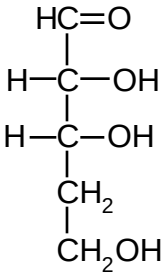
2



3



4



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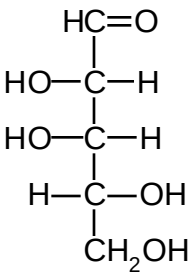


6

__ A. 4

__ B. 3

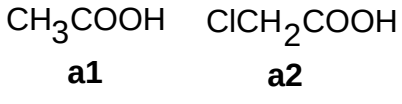
__ C. 5

__ D. 2

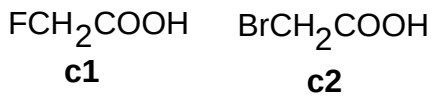
__ E. 6

Rationale:
Problem 14.22

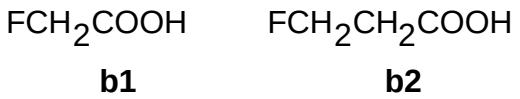
30. Which species in each of the following pairs is more acidic? Pick the correct statement from the multiple choices.



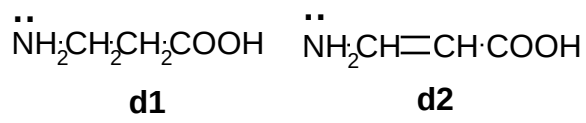
a1 **a2**



c1 **c2**



b1 **b2**



d1 **d2**

__ A. d2 is more acidic than d1.

__ B. b2 is more acidic than b1.

__ C. None of the other choices is correct.

__ D. a1 is more acidic than a2.

__ E. c1 is more acidic than c2.

Rationale:
Problem 7.14

31. Which of the choices CORRECTLY specifies the types of sidechain interactions by which the sidechains of the pairs of amino acids indicated in the multiple choices can interact with one another?

__ A. Ser and His do not have sidechains.

__ B. Ser and His can interact via a hydrophobic interaction.

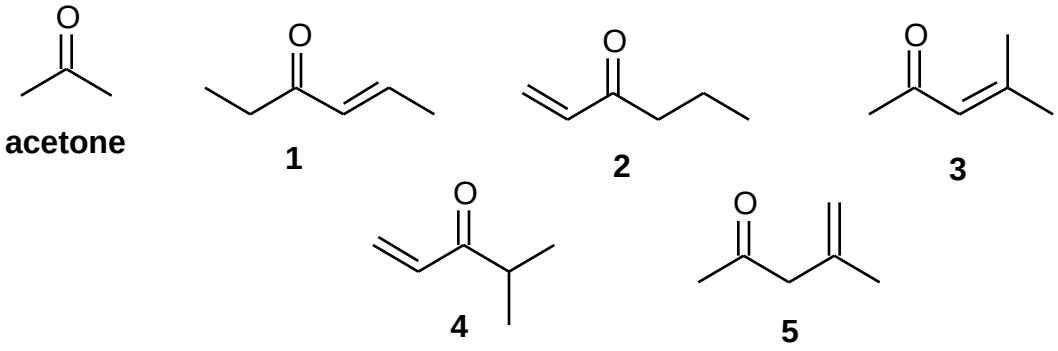
__ C. Phe and Leu sidechains can form a disulfide (covalent) bridge with one another.

__ D. Arg and Glu can form a salt bridge with one another.

__ E. Ser and His sidechains can interact by forming covalent bridges.

Rationale:
Problem 16.30

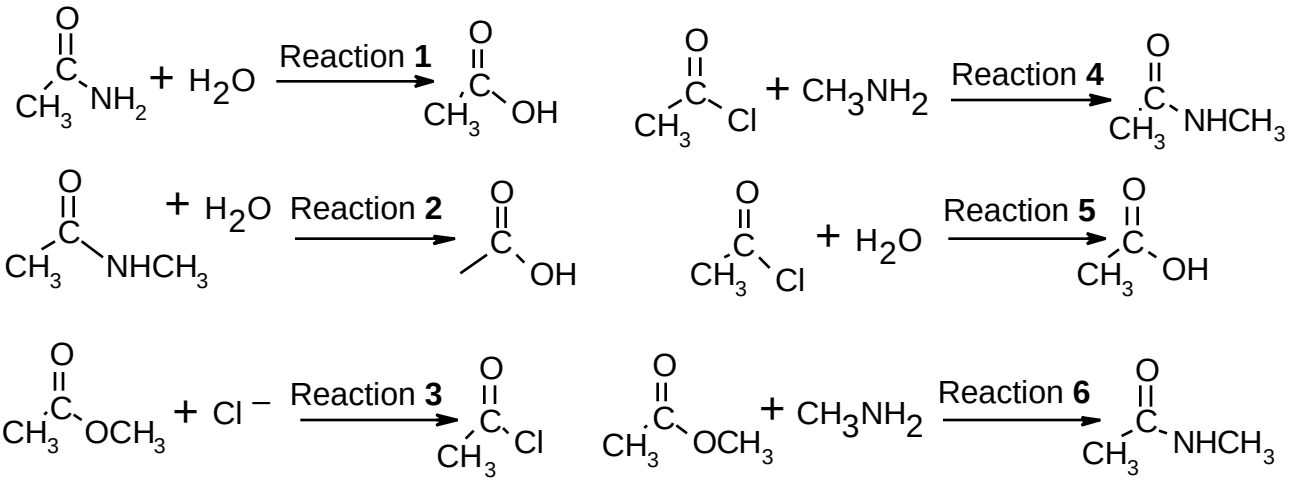
32. With acetone (structure below) as the reactant find the product of an aldol condensation from among the numbered structures shown below.



__ A. 1
__ B. 2
__ C. 5
__ D. 3
__ E. 4

Rationale:
Problem 13.34

33. Which of the following reactions will give the carbonyl products shown? User the pKa table below the reactions to help you solve this problem.



Formula	pKa	Formula	pKa	Formula	pKa
HCl	-7	CH_3OH	15.5	CH_3NH_2	40
H_3O^+	-1.7	$CH_3OH_2^+$	-2.5	$CH_3NH_3^+$	10.7
H_2O	15.7	NH_3	36	NH_4^+	9.4
HO^-	52			CH_3COOH	4.76

__ A. Reactions 1, and 2 will give the carbonyl products shown.

__ B. Reactions 1, 2, and 3 will give the carbonyl products shown.

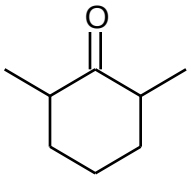
__ C. Reactions 3, and 5 will give the carbonyl products shown.

__ D. Reactions 4, 5, and 6 will give the carbonyl products shown.

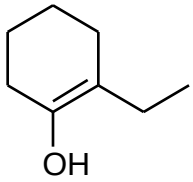
__ E. Only reaction 5 will give the carbonyl product shown.

Rationale:
Problem 11.48

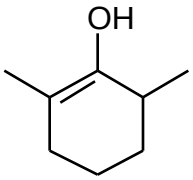
34. Find the enol tautomer of structures A, B, and C below from among the labelled structures to the right of structures A, B, and C. Pick the correct statement from the multiple choices.



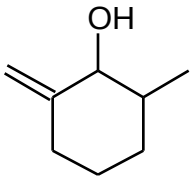
A



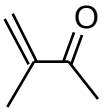
A1



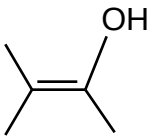
A2



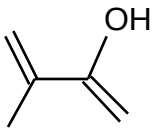
A3



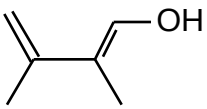
B



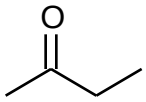
B1



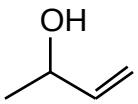
B2



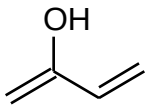
B3



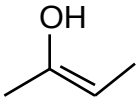
C



C1



C2



C3

__ A. A3 is the enol tautomer of A.

__ B. C1 is the enol tautomer of C.

__ C. B3 is the enol tautomer of B.

__ D. B1 is the enol tautomer of B.

__ E. A2 is the enol tautomer of A.

Rationale:
Problem 13.6

35. Arrange the following alkyl halides in order from most reactive to least reactive in an S_N1 reaction: 2-bromo-3-methylbutane, 1-bromo-3-methylbutane, 2-bromo-2-methylbutane. Pick the choice which gives this order.

__ A. 2-bromo-3-methylbutane > 1-bromo-3-methylbutane > 2-bromo-2-methylbutane

__ B. 2-bromo-2-methylbutane > 1-bromo-3-methylbutane > 2-bromo-3-methylbutane

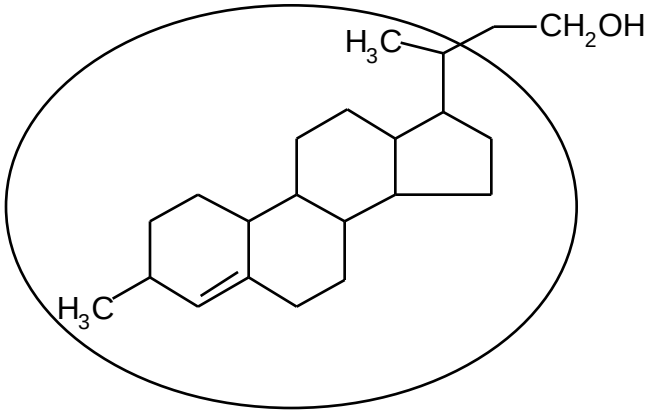
__ C. 1-bromo-3-methylbutane > 2-bromo-2-methylbutane > 2-bromo-3-methylbutane

__ D. 2-bromo-2-methylbutane > 2-bromo-3-methylbutane > 1-bromo-3-methylbutane

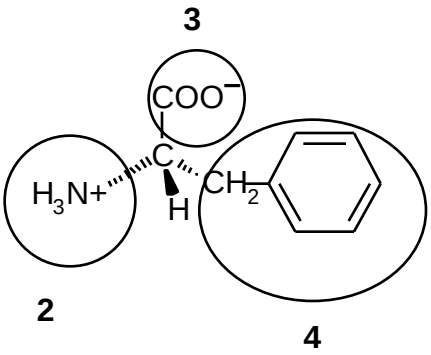
__ E. 2-bromo-3-methylbutane > 2-bromo-2-methylbutane > 1-bromo-3-methylbutane

Rationale:
Problem 8.13

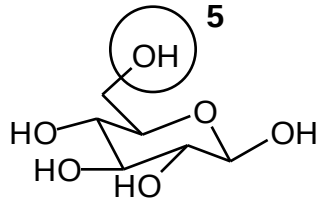
36. Structures of three molecular substances are shown below. Portions of these structures are circled and numbered. Decide whether each of the circled regions is hydrophobic or hydrophilic and then choose the CORRECT statement from the multiple choices.



1



2 **4**



__ A. Region 5 is hydrophobic.

__ B. Region 3 is hydrophobic.

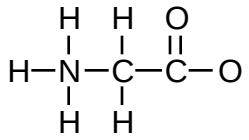
__ C. Region 1 is hydrophilic.

__ D. Region 4 is hydrophobic.

__ E. Region 2 is hydrophobic.

Rationale:
Problem 15.9

37. Draw the missing lone-pair electrons and assign the missing formal charges for the structure shown below. Select the correct statement about your completed structure from the multiple choices.



glycine, pH 7.4

__ A. The rightmost oxygen has a formal charge of +1.

__ B. The topmost oxygen (with the double bond to carbon below it) has three lone pairs of electrons.

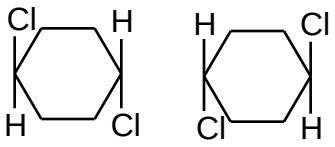
__ C. The rightmost oxygen has three lone pairs of electrons.

__ D. The nitrogen has one lone pair of electrons.

__ E. The nitrogen has a formal charge of –1.

Rationale:
Problem 1.54

38. What is the relationship between the compounds having the structures shown below?



__ A. They are identical.

__ B. They are enantiomers.

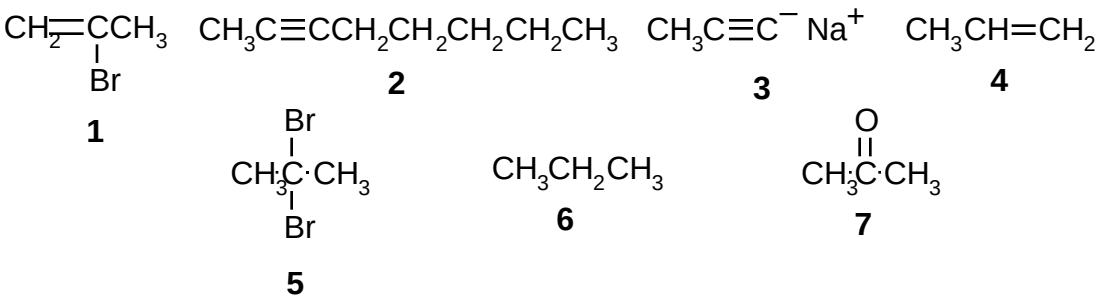
__ C. They are constitutional isomers.

__ D. They are different meso isomers.

__ E. They are diasteriomers.

Rationale:
Problem 4.50

39. Using the numbered structures below for reference figure out what would be (the structure of) the major product of the reaction of one mole of propyne with each of the reagents given in the multiple choices. Which choice gives the correct product structure for a given reagent in this reaction?



1 **2** **3** **4**

5 **6** **7**

__ A. propyne reacted with HBr (1 mol) gives 5.

__ B. propyne reacted with $CH_3CH_2CH_2CH_2CH_2Br$ gives 2.

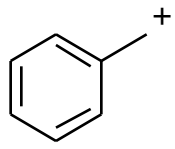
__ C. propyne reacted with excess H_2, Pd/C gives 4.

__ D. propyne reacted with $NaNH_2$ gives 3.

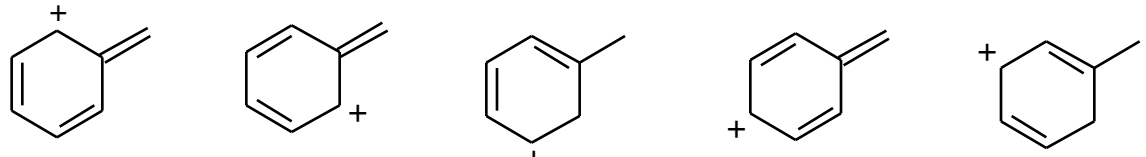
__ E. propyne reacted with H_2/Lindlar catalyst gives 6.

Rationale:
Problem 6.42

40. Find the numbers under all of the structures which are valid resonance structures of the ion labelled A below.



A



1 **2** **3** **4** **5**

__ A. 1, 2, 3

__ B. 4, 5

__ C. 2, 3, 4

__ D. 1, 2, 4

__ E. 3, 5

Rationale:
Problem 7.34

Answer Key

"Grade or Education" = 1

CHEM 2060/01
Summer 18
Final Exam
Chapters 1 - 17

1. D
2. A
3. E
4. E
5. E
6. C
7. D
8. B
9. C
10. B
11. E
12. C
13. B
14. C
15. E
16. C
17. D
18. E

19. D

20. A

21. D

22. A

23. D

24. D

25. B

26. B

27. A

28. A

29. B

30. E

31. D

32. D

33. D

34. E

35. D

36. D

37. C

38. A

39. D

40. D