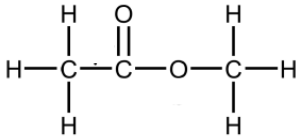
Organic and Biological Chemistry Sample Multiple Choice Questions Fall 2022

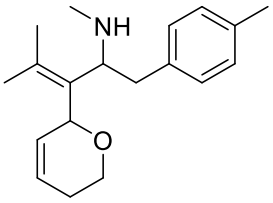
The number of sample questions does not reflect the number of questions that may appear on an In-term test.

1. How many sp^3 hybridized atoms are there in the following molecule?



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

2. What is the formula for the molecule below?



A. $C_{19}H_{27}NO$
B. $C_{18}H_{26}NO$
C. $C_{17}H_{25}NO$
D. $C_{19}H_{25}NO$
E. $C_{18}H_{27}NO$

3. How many isomers that contain both an alkene and an alcohol are possible for C_3H_6O?

A. 9
B. 7
C. 5
D. 4
E. 3

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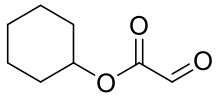
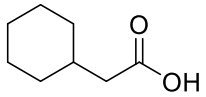
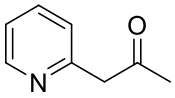
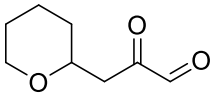
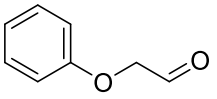
4. Which of the following compounds contains an ester?

A) 

B) 

C) 

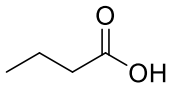
D) 

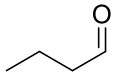
E) 

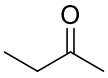
5. What is the product of the reaction between an alcohol and a carboxylic acid?

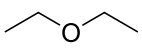
A. ether
B. ester
C. aldehyde
D. ketone
E. amide

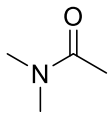
6. Which of the following compounds reacts with NaOH to give a salt?

A) 

B) 

C) 

D) 

E) 

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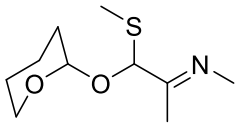
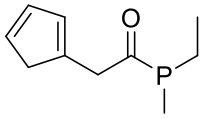
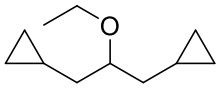
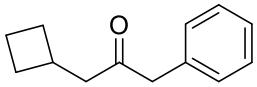
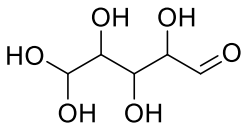
7. Which of the following compounds has a total of 4 optical isomers?

A) 

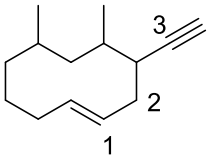
B) 

C) 

D) 

E) 

8. What is the hybridization at the carbon atoms labelled 1, 2, 3?



A) sp^3, sp^3, sp
B) sp, sp^3, sp^2
C) sp, sp^2, sp^3
D) sp^2, sp^2, sp
E) sp^2, sp^3, sp

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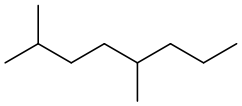
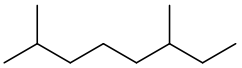
9. Which of the following is a skeletal structure for 2,5-dimethyloctane?

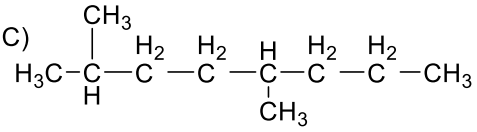
A)



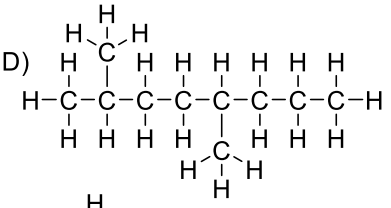
B)



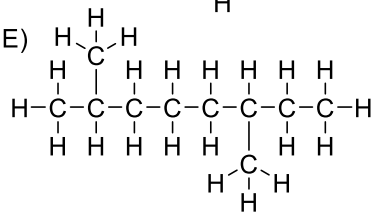
C)



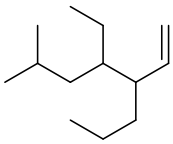
D)



E)



10. Which of the following compounds is represented by the structure shown?



A) 6-methyl-4-ethyl-3-propyl-1-heptene
B) 4-ethyl-6-methyl-3-propyl-1-heptene
C) 3-propyl-6-methyl-4-ethyl-1-heptene
D) 3-propyl-7-methyl-5-ethyloctene
E) 4-ethyl-2-methyl-5-propyl-6-heptene

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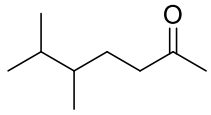
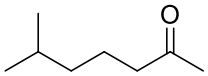
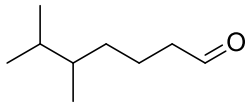
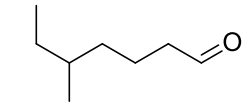
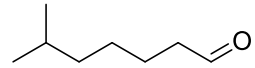
11. Which of the following structures represents 6-methylheptanal?

A) 

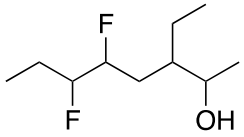
B) 

C) 

D) 

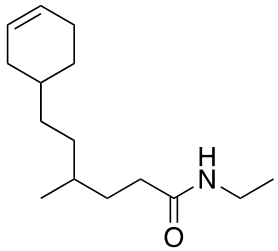
E) 

12. Which of the following compounds has the structure shown below?



A 3,4-difluoro-5-ethyl-7-octanol
B 3-ethyl-5,6-difluoro-2-octanol
C 3-ethyl-5,6-difluoro-2-octanone
D 3,4-difluoro-6-ethyl-7-octanal
E None of the above

13. What is the formula for the molecule shown below?



A	**B**	**C**	**D**	**E**
$C_{15}H_{27}NO$	$C_{15}H_{26}NO$	$C_{16}H_{26}NO$	$C_{16}H_{28}NO$	$C_{15}H_{28}NO$

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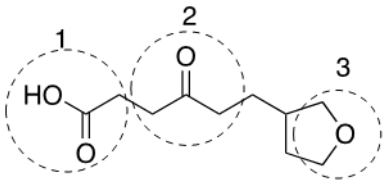
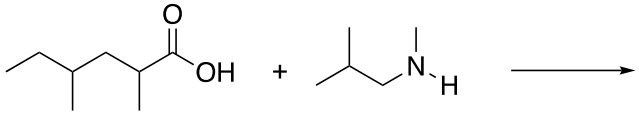
14. What are the names of the functional groups labelled 1,2 3?

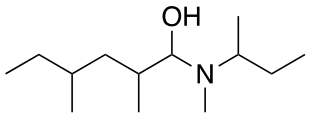


A aldehyde, alcohol, ketone
B aldehyde, ketone, ether
C carboxylic acid, ketone, ether
D ketone, aldehyde, alcohol
E alcohol, ether, ketone

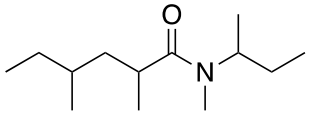
15. Which answer is the correct organic product for the reaction shown below?



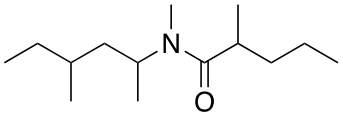
A



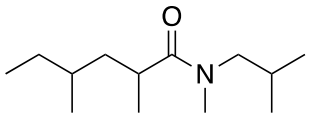
B



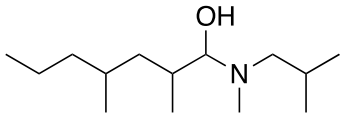
C



D



E

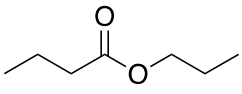


16. How many constitutional isomers of C_4H_7Br are capable of having a geometric isomer?

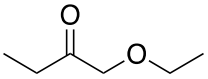
A 1
B 2
C 3
D 4
E 5

17. Which of the following compounds is an ester?

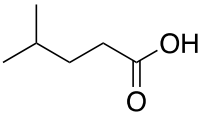
A



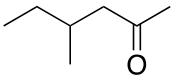
B



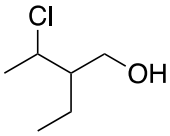
C



D

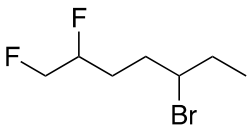


E

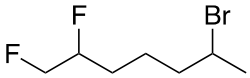


18. Which of the following structures is a skeletal structure for 6-bromo-1,2-difluoro-heptane?

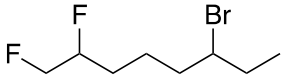
A



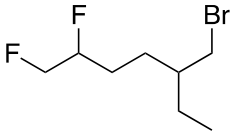
B



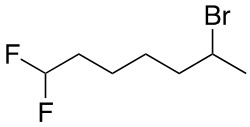
C



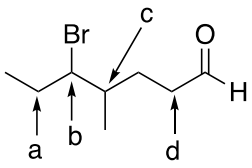
D



E



19. Are the labelled atoms (a,b,c and d) chiral?



A no, yes, yes, yes
B yes, yes, yes, no
C yes, yes, no, no
D yes, no, yes, no
E no, yes, yes, no

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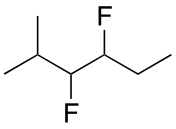
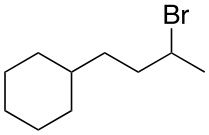
20. Which molecule has 2 optical isomers?

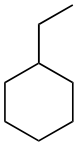
A



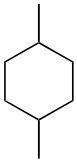
B



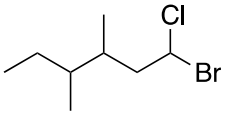
C



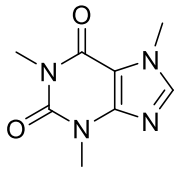
D



E



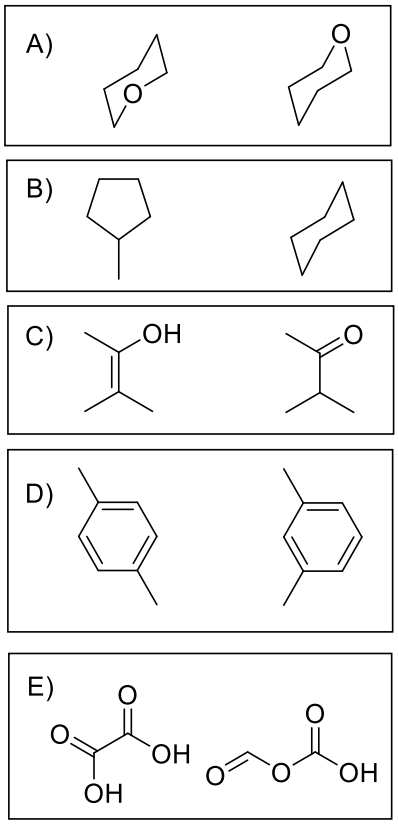
21. Which functional groups are present in the caffeine molecule shown?



A) ketone and amine
B) ether and amine
C) aldehyde and amine
D) acetylene and amine
E) amide and amine

Organic and Biological Chemistry Sample Multiple Choice Questions Fall 2022

22. Which molecular representations below are NOT constitutional isomers of each other?



Question	Answer
1	C
2	A
3	D
4	A
5	B
6	A
7	A
8	E
9	A
10	B
11	E
12	B
13	A
14	C

15	D
16	C
17	A
18	B
19	E
20	B
21	E
22	A