Chemistry 2541, Summer 2018
Quiz 1

Key

(30 points)

Important notes:

- Please use the provided Scantron form for your answers; you can keep the sheet with the questions and can use it as scratch paper
- Do not forget to write your name on the Scantron form
- You will not receive credit for unmarked answers or for more than one mark on answer line
- Your scores will be posted on eGradebook; graded Scantron forms will not be returned to students.

Questions 1-15: Please mark the appropriate box on the front of the Scantron form (2 pts each).

1. How many valence electrons does **oxygen** have?

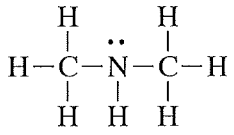
A) 3 B) 4 C) 5 D) 6

2. Which one of the following pairs of elements will form an **ionic** compound?

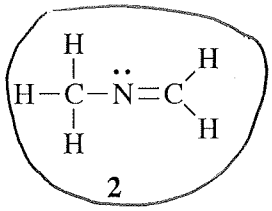
A) Na and O B) F and H C) F and C D) B and O

3. Which two of the following structures represent correct **Lewis structures** of a compound with molecular formula $\mathbf{C_2H_5N}$?

C_2H_7N



1



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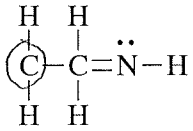

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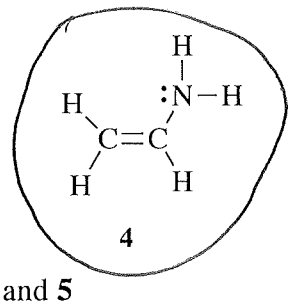

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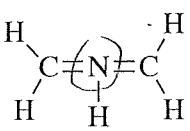
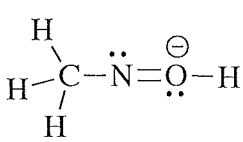
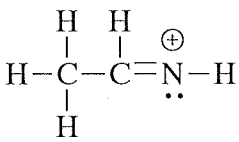


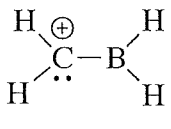
5

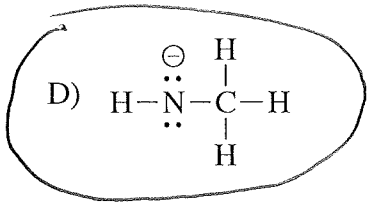
A) **1** and **3** B) **1** and **4** C) **2** and **4** D) **3** and **5**

4. Which one of the following polyatomic ions is a correct **Lewis structure** with correct **formal charges**?

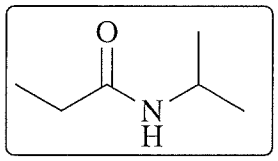
A) 

B) 

C) 

D) 

5. Which one is the **condensed** structure corresponding to the **line-angle** structure shown in the box?

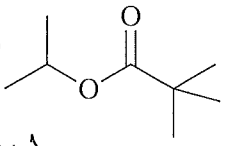
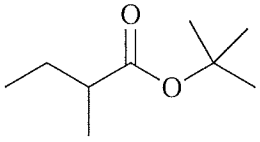
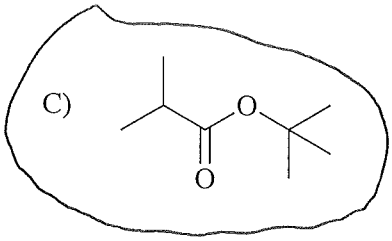
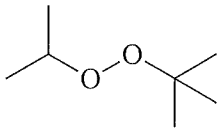


A) $CH_3CH_2CONHCH(CH_3)_2$ B) $CH_3CH_2ONHCH(CH_3)_2$

C) $CH_3CONHCH_3CHCH_3$ D) $CH_3CH_2CONHC(CH_3CH_3)$

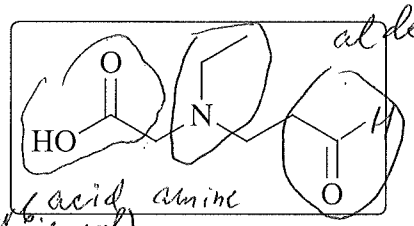
6. Which one of the following **line-angle** structures corresponds to the **condensed** structural formula shown in the box?

$(CH_3)_2CHCO_2C(CH_3)_3$

A)  B)  C)  D) 

$(CH_3)_2CHOCOC(CH_3)_3$

7. What are the names of **functional groups** in a molecule in the box?

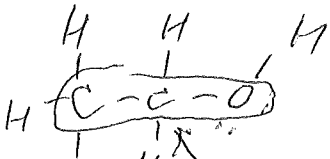


A) ketone, amine, carboxyl B) aldehyde, amide, hydroxyl

C) ketone, amine, aldehyde D) aldehyde, amine, carboxyl

8. What is the approximate **C–C–O bond angle** in ethanol CH_3CH_2OH?

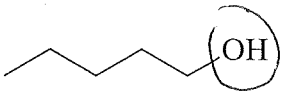
A) **90°** B) **109.5°** C) **120°** D) **180°**



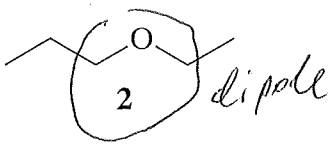
9. Which one of the following molecules has **dipole moment μ = 0 D**?

A) BCl_3 B) $CHCl_3$ C) NCl_3 D) OCl_2

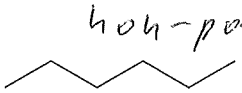
10. Sort the following compounds by decreasing **boiling point**.



1 H bond



2 dipole



non-polar

3

A) **1** (highest) > **2** > **3** (lowest) B) **2** (highest) > **3** > **1** (lowest)

C) **3** (highest) > **1** > **2** (lowest) D) **3** (highest) > **2** > **1** (lowest)