

# **Chemistry 2541**

## **Fall Semester 2015**

### **Quiz 1**

(30 points; 3 pts each question)

This quiz has 10 questions. Please use the provided Scantron form for your answers.

*Important notes:*

- Only answers on the Scantron form will be graded; 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.

Good Luck!

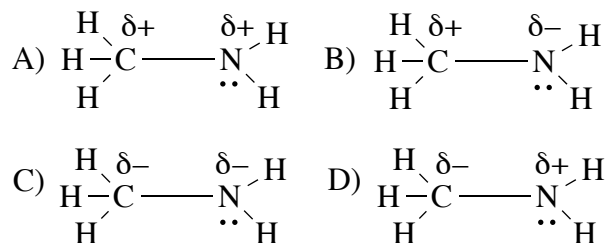
1. Which of the following is the ground-state electron configuration of **fluorine**?

- A)  $1s^2 2s^1$   
 B)  $1s^2 2s^2 2p_x^1 2p_y^1 2p_z^1$   
 C)  $1s^2 2s^2 2p_x^2 2p_y^2 2p_z^1$   
 D)  $2s^2 3s^2 3s^2 3p_x^2 3p_y^1 3p_z^1$

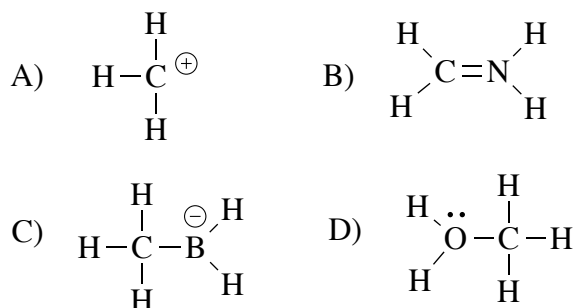
2. Which of elements below is **least electronegative**?

- A) carbon                      B) boron  
 C) nitrogen                    D) fluorine

3. Which of the following correctly describes **bond polarity** in a molecule of amine?



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



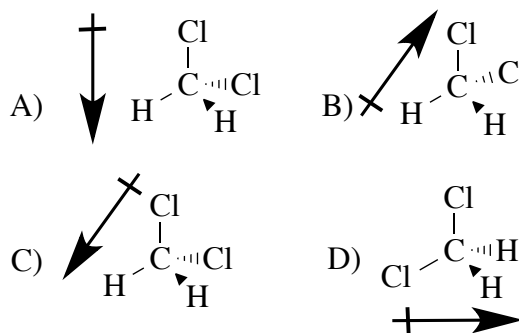
5. What is an approximate **O–C–H bond angle** in formaldehyde,  $\text{H}_2\text{C}=\text{O}$ , according to VSEPR?

- A)  $90^\circ$                       B)  $120^\circ$   
 C)  $109.5^\circ$                   D)  $180^\circ$

6. Which of the following molecules has **dipole moment  $\mu = 0 \text{ D}$** ?

- A)  $\text{BF}_3$                       B)  $\text{CHF}_3$   
 C)  $\text{F}_2\text{C}=\text{CH}_2$               D)  $\text{CH}_3\text{OH}$

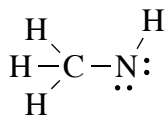
7. Which represents correct **direction of dipole moment** of dichloromethane?



8. Which of the following compounds has a **nonpolar covalent bond**?

- A)  $\text{CF}_4$                       B)  $\text{NF}_3$   
 C)  $\text{C}_2\text{F}_6$                     D)  $\text{CO}_2$

9. What is the **formal charge** of the atom of **nitrogen** in the following molecule?



- A)  $-1$                       B)  $+1$                       C)  $0$                       D)  $-2$

10. Which of the following compounds has the functional group of an **aldehyde**?

- A)  $\text{CH}_3\text{CO}_2\text{CH}_3$               B)  $\text{CH}_3\text{CO}_2\text{H}$   
 C)  $(\text{CH}_3)_3\text{CCHO}$               D)  $\text{HOCH}_2\text{COCH}_3$