#### PICK THE MOST ACCURATE ANSWER FOR EACH QUESTION

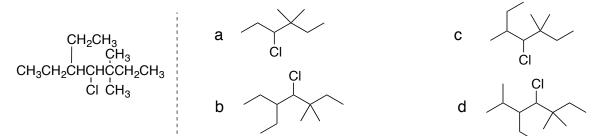
- 1. Which is the correct electronic configuration for <sup>7</sup>N?
  - a.  $1s^2 2s^2 2p_x^2 2p_y^1 2p_z^0$  c.  $1s^2 2s^2 2p_x^1 2p_y^1 2p_z^1$
  - b.  $1s^2 2s^2 2p_x^2 2p_y^2 2p_z^2$  d.  $1s^2 2p_x^2 2p_y^2 2p_z^1$
- 2. How many sp<sup>2</sup> hybridized atoms are there in the following molecule?

3. Which of the following is the correct **Anti-Newman** projection of **1-bromo-pentane** looking down the **C1 - C2** bond?

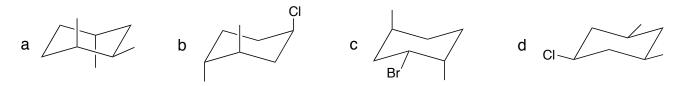
4. Which of the following is NOT a correct set of resonance structures?

5. Which of the following is the **correct molecular formula** of the **molecule below**?

# 6. Which of the following is the correct stick structure of the condensed structure on the left?



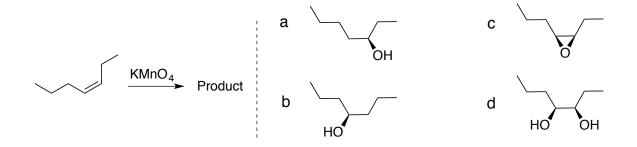
### 7. Which of the following is the MOST stable chair conformation?



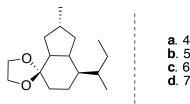
### 8. Which of the following structures represents isohexane?

$$a \longrightarrow b \longrightarrow c \longrightarrow d \longrightarrow$$

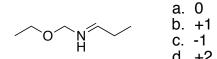
## 9. What is the correct product for the following reaction?



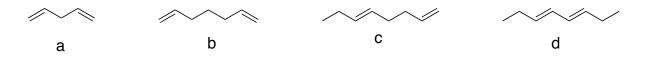
### 10. How many chiral carbons (C\*) are there in the following molecule?



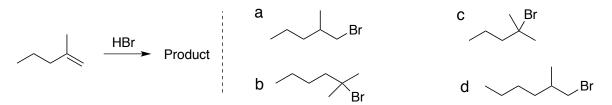
# 11. What is the **formal charge** of the **Nitrogen atom** in the following structure?



# 12. Which of the following molecules contains a Conjugated Dlene?

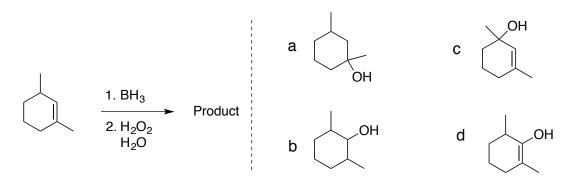


#### 13. What is the correct product for the following reaction?

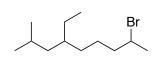


# 14. Which of the following is the **correct** representation of **trans-1-chloro-3-ethylcyclohexane**?

### 15. What is the correct product for the following reaction?



### 16. What is the correct IUPAC name for the following structure?

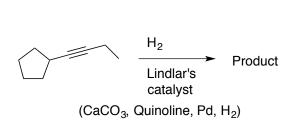


- a. 8-bromo-4-ethyl-2-methylheptane
- b. 8-bromo-4-ethyl-2-methylnonane
- c. 2-bromo-6-ethyl-8-methylheptane
- d. 2-bromo-6 ethyl-8-methylnonane

# 17. How many sp<sup>2</sup> Carbons are there in the molecule below?



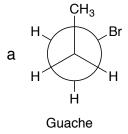
#### 18. What is the correct product for the following reaction?



# 19. What is the formal charge of the Oxygen atom in the following structure?



## 20. Which of the following is the LEAST STABLE Newman projection?



b

**Eclipsed** 

ÓН

CI

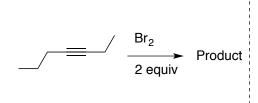
Anti

CH<sub>3</sub>

d

**Eclipsed** 

# 21. What is the correct product for the following reaction?



# 22. Which of the following is a "meso" compound?





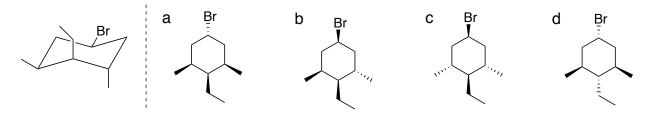
### 23. What is the correct product for the following reaction?

$$\frac{1. O_3}{2. \text{Zn/H}^+} \quad \text{Product}$$

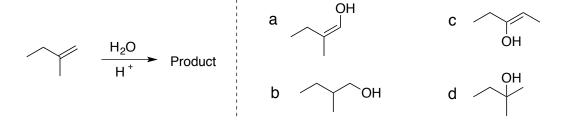
## 24. How many $\pi$ -bonds are there in the following structure?

# 25. What is the correct product for the following reaction?

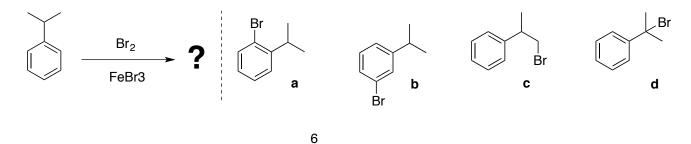
### 26. What is the correct representation of the chair structure on the left?



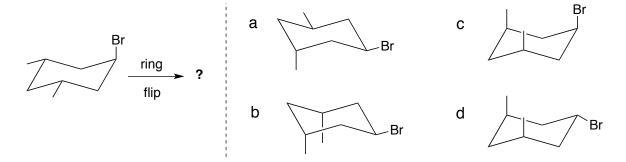
# 27. What is the correct product for the following reaction?



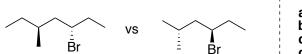
### 28. What is the correct product for the following reaction?



# 29. Which one is the correct RING FLIP representation of the chair structure on the left?

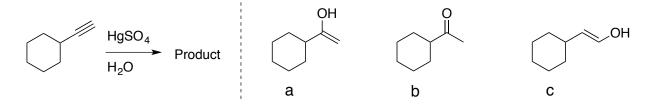


#### 30. What is the relationship of the following pair of compounds?



- a. Enantiomers
- b. Diastereomers
- **c**. Identical
- d. Not stereoisomers

#### 31. Which of the following IS NOT a possible product for the following reaction?



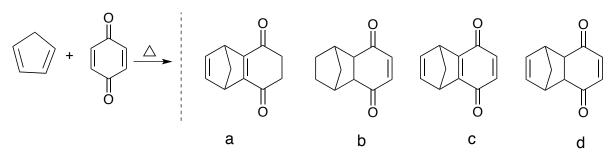
#### 32. Which is the **correct** name for the following structure?



- a. (1R, 2R)-1-bromo-2-methylcyclohexane
- b. (1S, 2S)-1-bromo-2-methylcyclohexane
- c. (1R, 2S)-1-bromo-2-methylcyclohexane
- d. (1S, 2R)-1-brom-2-methylcyclohexane

#### 33. Which one is the correct Fisher projection for the following molecule?

## 34. Which of the following represent the product of the Diels-Alder (4+2 cycloaddition) reaction?



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BERKELIUM CALIFORNIUM EINSTEINIUM

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However three such elements (Th. Pa. and U) do have a characteristic terrestrial isotopic composition, and for these an atomic weight is iabulated.

Editor, Aditya Vardhan (adivar@nettlinx.com)