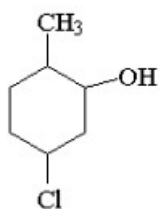


5) Give the IUPAC name for the following structure:

5) _____



- A) 2-methyl-5-chlorocyclohexanol
- B) 1-chloro-4-methylcyclohexanol
- C) 5-chloro-2-methylcyclohexanol
- D) 3-chloro-6-methylcyclohexanol
- E) 2-methyl-3-chlorocyclohexanol

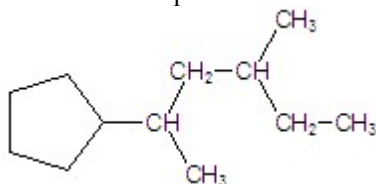
6) How many constitutional isomers are possible for C₆H₁₄?

6) _____

- A) 8
- B) 5
- C) 4
- D) 6
- E) 7

7) Name the compound.

7) _____



- A) 5-cyclopentyl-3-methylheptane
- B) 5-cyclopentyl-3-methylhexane
- C) 1-cyclopentyl-1,3-dimethylpentane
- D) 2-cyclopentyl-4-methylhexane
- E) 2-cyclopentyl-4-methylheptane

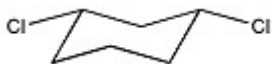
8) Identify the compound with the highest pK_a.

8) _____

- A) CH₃OH
- B) CH₃CH₃
- C) HCCH
- D) CH₂CH₂
- E) CH₃NH₂

9) Name the compound shown below.

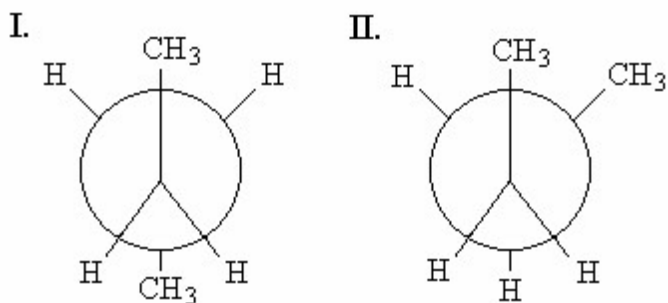
9) _____



- A) *trans*-1,3-dichlorocyclohexane
- B) *trans*-1,2-dichlorocyclohexane
- C) *cis*-1,3-dichlorocyclohexane
- D) *trans*-1,4-dichlorocyclohexane
- E) *cis*-1,2-dichlorocyclohexane

10) Which of the following best explains the reason for the relative stabilities of the conformers shown?

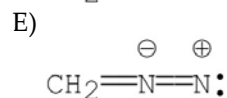
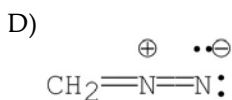
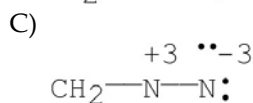
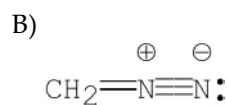
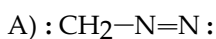
10) _____



- A) II has more torsional strain. B) I has more torsional strain.
 C) I has more steric strain. D) II has more steric strain.

11) Which of the following structures, including formal charges, is correct for diazomethane, CH₂N₂?

11) _____



12) Which of the following covalent bonds has the largest dipole moment?

12) _____

- A) H-F B) H-N C) C-O D) C-H E) C-C

13) Which of the following describes the most stable conformation of *trans*-1-*tert*-butyl-3-methylcyclohexane?

13) _____

- A) Both groups are axial.
 B) The *tert*-butyl group is equatorial and the methyl group is axial.
 C) Both groups are equatorial.
 D) The *tert*-butyl group is axial and the methyl group is equatorial.
 E) none of the above

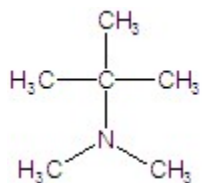
14) Identify the hybridization of carbon in H₂CO.

14) _____

- A) sp⁴ B) sp² C) sp D) sp³ E) s³p

15) Provide the IUPAC name of the compound.

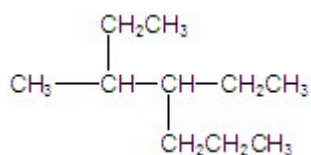
15) _____



- A) N,N,2-trimethylpropanamine
- B) N,N,1,1-tetramethylethanamine
- C) N,N-dimethyl-2-butanamine
- D) N,N,2-trimethyl-2-propanamine
- E) N,N,2-trimethyl-1-propanamine

16) Name the compound.

16) _____



- A) 4-ethyl-5-methylheptane
- B) 2-ethyl-3-propylpentane
- C) 4-ethyl-3-methylheptane
- D) 2,3-diethylhexane
- E) 4-methyl-3-ethylheptane

17) Which of the compounds below have bonds that are predominantly ionic?

17) _____

- A) NH₃
- B) CF₄
- C) KCl
- D) both A and B
- E) both B and C

18) What is the product formed from the following acid-base reaction when ammonia functions as a base? The equilibrium lies far to the reactants.

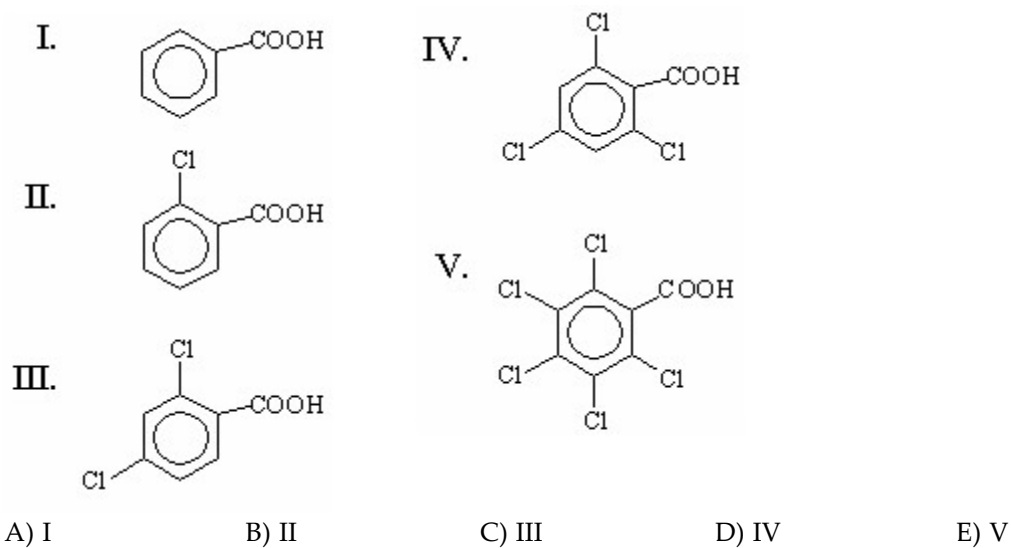
18) _____



- A) $\overset{\cdot\cdot}{\text{C}}\text{H}_3\text{NH}_2 + \text{H}_2\text{O}$
- B) $\text{CH}_3\text{O}^- + \text{:}\overset{\cdot\cdot}{\text{N}}\text{H}_4^+$
- C) $\text{CH}_2\text{OH} + \text{:}\overset{\cdot\cdot}{\text{N}}\text{H}_3$
- D) $\text{CH}_3\text{OH}_2^+ + \text{:}\overset{\cdot\cdot}{\text{N}}\text{H}_2^-$
- E) $\text{CH}_4 + \text{NH}_2\text{OH}$

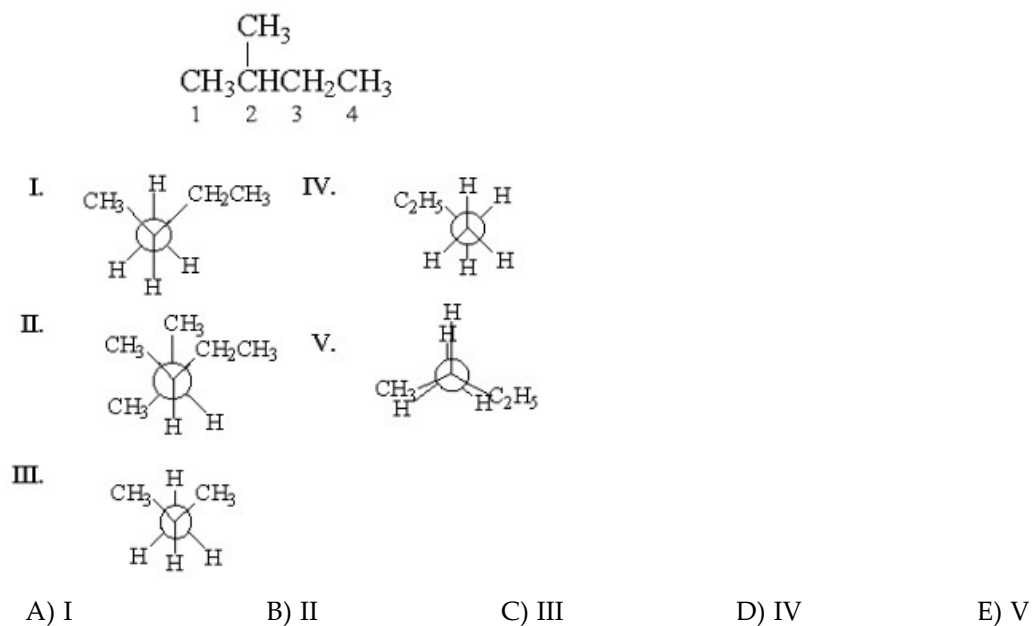
19) Which of the following is the strongest acid?

19) _____



20) Which of the following is the staggered conformation for rotation about the C1–C2 bond in the following structure?

20) _____



Answers Test Exam 1c

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