

Gaining Apex Coaching Centre

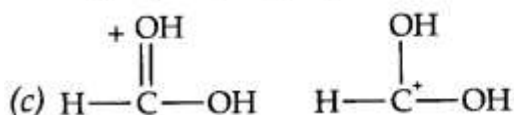
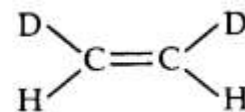
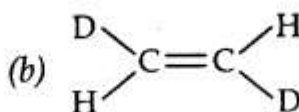
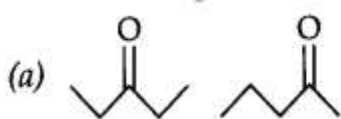
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ASSIGNMENT - I (10+1 CHEMISTRY)

CHAPTER - (BASIC Organic)

- 1) Explain the order of stability of carbocation (Inductive and Hyperconjugation)
- 2) Explain the order of stability of Carbanion
- 3) Explain the order of stability of Free Radicals
- 4) Distinguish between Inductive and electrometric effect
- 5) Distinguish between Resonance and Inductive effect
- 6) Explain + R and -R effect using the example of Aniline and Nitro Benzene
- 7) What are electrophile and Nucleophile
- 8) Which is more acidic and why i) Acetic acid and formic acid ii) chloroacetic acid and Fluoroacetic acid
- 9) What are hybridisation states of each carbon atom in the following compounds? $\text{CH}_2=\text{C}=\text{O}$, $\text{CH}_3\text{CH}=\text{CH}_2$, $(\text{CH}_3)_2\text{CO}$, $\text{CH}_2=\text{CHCN}$, C_6H_6 .
- 10) Which of the two: $\text{O}_2\text{NCH}_2\text{CH}_2\text{O}^-$ or $\text{CH}_3\text{CH}_2\text{O}^-$ is expected to be more stable and why?
- 11) Explain why alkyl groups act as electron donors when attached to a π -system.
- 12) Draw the resonance structures for the following compounds. Show the electron shift using curved-arrow notation. (a) $\text{C}_6\text{H}_5\text{OH}$ (b) $\text{C}_6\text{H}_5\text{NO}_2$ (c) $\text{CH}_3\text{CH}=\text{CHCHO}$ (d) $\text{C}_6\text{H}_5-\text{CHO}$
- 13) What is the relationship between the members of following pairs of structures? Are they structural or geometrical isomers or resonance contributors?



- 14) Explain the terms inductive and electrometric effects. Which electron displacement effect explain the following correct orders of acidity of the carboxylic acids?
 - (a) $\text{Cl}_3\text{CCOOH} > \text{Cl}_2\text{CHCOOH} > \text{ClCH}_2\text{COOH}$
 - (b) $\text{CH}_3\text{CH}_2\text{COOH} > (\text{CH}_3)_2\text{CHCOOH} > (\text{CH}_3)_3\text{CCOOH}$
- 15) Give a brief description of the principles of the following techniques taking an example in each case: (a) Crystallization (b) Distillation (c) Chromatography

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- 16) What is the difference between distillation, distillation under reduced pressure and steam distillation?
- 17) Explain hyperconjugation effect. How does hyperconjugation effect explain the stability of alkenes?
- 18) (i) Arrange the following carbocation in increasing order of their stability.
 $(\text{CH}_3)_2 \overset{\oplus}{\text{C}}\text{H}$, CH_3CH_2^+ , $(\text{CH}_3)_3\text{C}^+$, $\overset{\oplus}{\text{C}}\text{H}_3$
- (ii) Write the IUPAC name of following compound.
- (a) $\text{CH}_3-\underset{\text{OH}}{\text{CH}}-\text{CH}_2-\text{OC}_2\text{H}_5$

- 19) Methyl group is ortho and para directing in nature. Explain