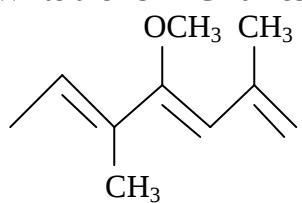
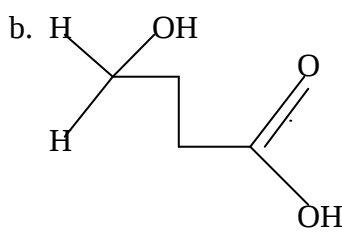
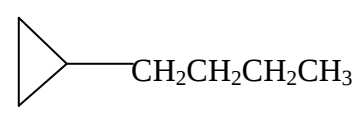
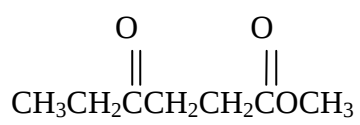


GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III • EXAMINATION – WINTER 2013****Subject Code: 133501****Date: 07-12-2013****Subject Name: Organic Chemistry for Technologist - I****Time: 02.30 pm - 05.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

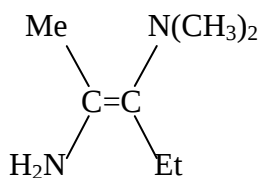
- Q.1 (a)** How is Ethanethiol prepared? What happens when, **07**
- a. Ethanethiol is treated with aldehyde & ketone in presence of HCl.
 - b. Hydrogen peroxide react with ethanethiol.
 - c. Strong oxidizing agent potassium permanganate reacts with ethanethiol.
- (b)** Write a note on: **04**
- a. Optical isomerism of 2, 3-dihydroxybutanedioic acid. **03**
 - b. Properties of enantiomer. **03**
- Q.2 (a)** 1. Draw structure corresponding to the following IUPAC names; **03**
- a. 3-Cyclopentylbuta-1,3-diene
 - b. 6-Cyano-3-oxo-4-heptenal
 - c. 1-Ethoxy-1-propanol
2. Write the IUPAC names for each of the following compounds; **04**
- a. 
 - b. 
 - c. 
 - d. 
- (b)** Write a note on: **04**
- a. Aldol & Cross aldol reaction. **03**
 - b. Cannizzaro reaction.
- OR**
- (b)** Write the structural formulas and give IUPAC names for all isomeric alcohols of the molecular formula $C_4H_{10}O$. **07**

- Q.3 (a)** Write a structure for each of the following compounds. Explain why the given name is wrong and give a correct name in each case. **07**
- 1-Methylpentane
 - 2,3-Dichloropropane
 - 3-Bromo-2-methylpropane
 - 2-Ethylbutane
 - 1,1,3-Trimethylpropane
- (b)**
- A hydrocarbon of formula C_6H_{12} decolorizes bromine solution, dissolves in concentrated sulfuric acid, yields 2-methylpentane on hydrogenation, and on ozonolysis gives formaldehyde and 3-methylbutanal. What is the structure of hydrocarbon? Give IUPAC name also. **02**
 - Give the general mechanism of electrophilic addition reaction. **05**
- OR**
- Q.3 (a)** Explain Wurtz synthesis, Corey-house synthesis and Kolbe's synthesis for preparation of Alkane. **07**
- (b)**
- How will you synthesize isopropyl alcohol from n-propyl alcohol? **04**
 - How will you distinguish between 1, 3-Butadiene and n-Butane. **03**
- Q.4 (a)**
- What are Carbonium ions? Arrange the following according to their increasing stability. Explain your answer. **03**
 - $CH_3CH_2CH_2CH_2^+$
 - $(CH_3)_3C^+$
 - $CH_3CH_2(CH_3)CH^+$
 - Explain why benzyl carbonium ion is more stable than ethyl carbonium ion. **04**
- (b)** Explain Hoffman reaction with mechanism. **07**
- OR**
- Q.4 (a)**
- Describe the isomerism exhibited by maleic and fumaric acids. **03**
 - An acid of formula $C_5H_{10}O_2$ is optically active. What is its structure? **02**
 - Explain the term: Electrophile & Nucleophile with suitable example **02**
- (b)** How are thioethers prepared? Discuss their chemical properties. **07**
- Q.5 (a)** Write only chemical reaction for following conversion: **04**
- Benzene $\rightarrow$ Benzaldehyde **04**
 - Benzaldehyde $\rightarrow$ Benzene **03**
- (b)**
- How does primary, secondary and tertiary alcohol differ in their behavior towards oxidation? **05**
 - Which of the following compound show Geometrical isomerism? **02**
 - $$\begin{array}{c} CH_3C=CCHCH_3 \\ | \quad | \\ Br \quad Br \end{array}$$
 - $(CH_3)_2C=C(CH_3)_2$
- OR**
- Q.5 (a)** How does ethyne react with following reagent? **07**
- $AgNO_3/NH_4OH$
 - $HCN/Ba(CN)_2$
 - HBr
 - Cu_2Cl_2/NH_4OH
 - Na/liq. NH_3
 - H_2/Pd
 - $H_2/Pd/BaSO_4$

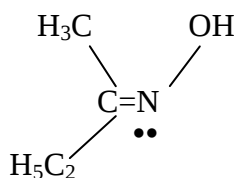
(b) 1. Assign E,Z notation to each of the following;

02

a.



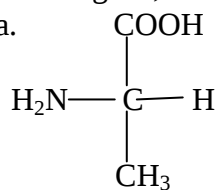
b.



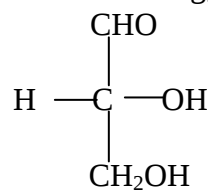
2. Assign R,S configuration to each of the following;

02

a.



b.



3. Which of the following will exhibit optical activity?

03

- Meso-2,3-Dihydroxybutane
- Mixture of 1 gm of (+)-erythro-2-bromo-3-chloro butane & 0.5 gm (-)-erythro-2-bromo-3-chloro butane
- Mixture of 1 gm of (+)-erythro-2-chloro-3-bromo butane & 1 gm (-) -erythro-2-chloro-3-bromo butane
- Racemic mixture of 2-Hydroxy propanoic acid
