

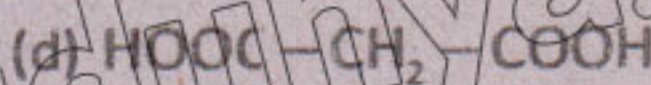
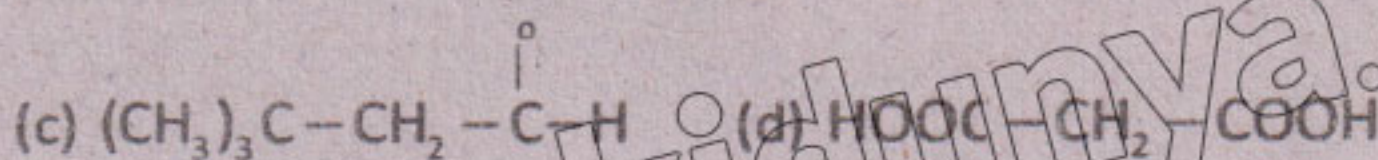
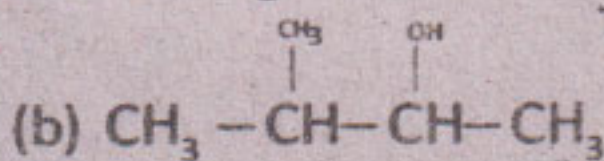
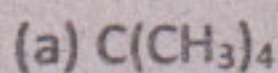
Chemistry

Note: Time allowed for Section-B and Section-C is 2 Hours and 40 minutes.

SECTION-B

Q2: Answer any TEN parts. Each part carries FOUR marks.

- 1) Write the chemical reactions to show that Al_2O_3 is amphoteric in nature?
- 2) Define electron affinity. Discuss its variation in Halogens?
- 3) Why compounds of Cu^+ are diamagnetic while Cu^{2+} are paramagnetic?
- 4) What is homologous series? Give the characteristics of homologous series?
- 5) Enlist four physical properties of cycloalkanes?
- 6) The reaction of H-Br with $\text{H-C}\equiv\text{C-H}$ gives 1,1-dibromoethane while with $\text{CH}_3\text{-C}\equiv\text{C-H}$, it gives 2,2-dibromopropane. Give reason.
- 7) Write the IUPAC names of the following.



- 8) Why secondary amines are more basic than tertiary amines in aqueous solution?
- 9) Steric hindrance makes the ketones less reactive than aldehydes. Comment over it.
- 10) Discuss the reactions of phenol with;
 - (a) Bromine
 - (b) Sodium metal
- 11) What is the effect of substituents on the acidity of carboxylic acids, if attached with carboxylic acid molecule?
- 12) State the medical problems that may relate to deficiencies of calcium and phosphorus?
- 13) Give the applications of infrared spectroscopy.

SECTION-C

Note: Attempt any THREE questions. All questions carry equal marks.

Q3: (a) What is acid rain? Discuss its effects on environment and living organisms?

(b) Describe four fractions obtained by fractional distillation of petroleum?

Q4: (a) What are elimination reactions? Discuss E^1 mechanism in detail.

(b) How are aldehydes and ketones reduce to;

(i) Alkanes by Wolf-Kishner Reduction

(ii) Alcohols by Catalytic Method

Q5: (a) Define stereoisomerism and explain its types?

(b) How carbon and hydrogen can be detected in organic compounds?

Q6: Draw the structural formula of the following compounds;

(i) Naphthalene

(ii) Acetic Anhydride

(iii) Adipic Acid

(iv) 2,4,6-Trinitrotoluene

(v) 3,4-dimethylhexan-2-ol

(b) Differentiate between partial and total synthesis.