

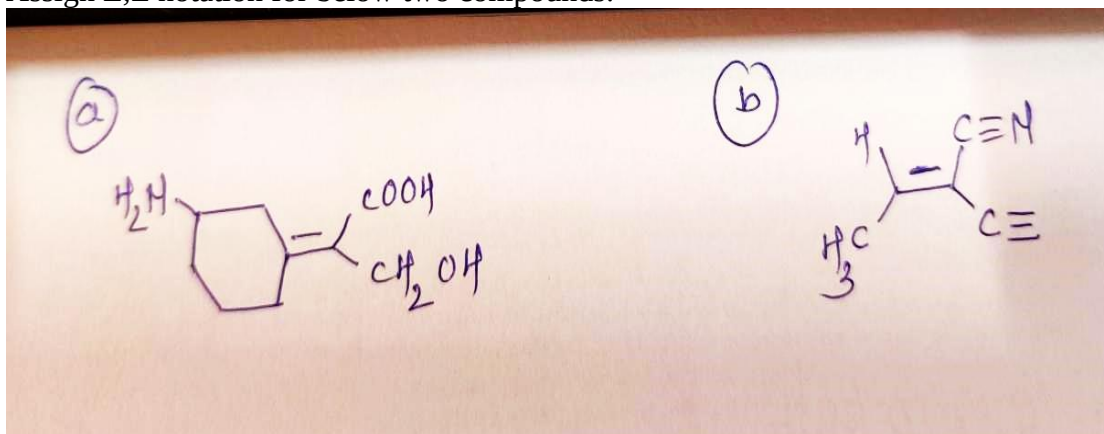
GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – SUMMER 2024****Subject Code: 3153622****Date: 16-05-2024****Subject Name: Chemical synthesis for Technologists****Time: 02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

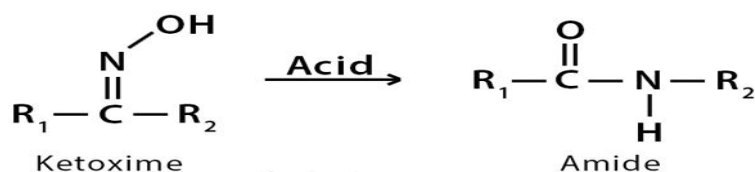
MARKS

- Q.1** (a) Write a note on Annulene. **03**
 (b) Write down Electrophilic substitution reaction of Pyridine. **04**
 (c) Define Aromaticity. Enlist different characteristics to find the aromaticity of the compound with two example. **07**

- Q.2** (a) Assign E,Z notation for below two compounds: **03**



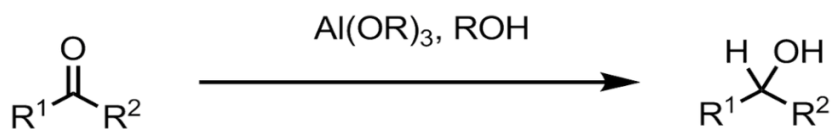
- (b) Name the following reaction and explain its mechanism and application in detail. **04**



- (c) Write down different reactions of Pyrrole. **07**
OR

- (c) Write a note on aromaticity of Heterocyclic compounds. Also write Nucleophilic substitution reaction of Pyridine. **07**

- Q.3** (a) Explain base catalysed Gabriel synthesis with its mechanism and application in detail. **03**
 (b) Explain why, **04**
 1. Pyridine is less basic than aliphatic amine.
 2. Pyridine is more basic than aniline
 (c) Name the following reaction and explain its mechanism and application in detail. **07**



OR

- Q.3** (a) Explain only mechanism of Leuckart reaction. **03**
 (b) Write methods of synthesis for Furan. **04**
 (c) Write detailed mechanism and applications of Knoevenagel condensation. **07**

- Q.4** (a) Write short note on Benzidine rearrangement. **03**
 (b) Explain the resolution methods for racemic mixture. **04**
 (c) Write detailed mechanism and applications of Rosenmund reaction. **07**

OR

- Q.4** (a) Differentiate between benzenoid and non-benzenoid compounds with example. **03**
 (b) Which of the following compound will exhibit optical activity? **04**
 1. Meso-2,3-Dihydroxypentane
 2. Mixture of 1 gm of (+)-erythro-2-bromo-3-chloro butane & 1 gm (-)-erythro-2-bromo-3-chloro butane
 (c) Write detailed mechanism and applications of Darzens reaction. **07**

- Q.5** (a) Write a short note on Geometrical Isomerism. **03**
 (b) Write a note on: Opposite behaviour of Halogen group. **04**
 (c) Explain Clemmensen reduction with mechanism and application in detail. **07**

OR

- Q.5** (a) Differentiate between Enantiomers and Diastereomers. **03**
 (b) Explain any electrophilic substitution reaction mechanism in detail. **04**
 (c) Explain Pinacol-Pinacolone rearrangement with mechanism. **07**
