(b) Explain various factors that effect the relative reactivities of aldehydes and ketones. 4

9. (a) How can following reactions be used to prepare benzaldehyde :
   (i) Rosenmund's reduction
   (ii) Etards reaction
   (iii) Gatterman Koch aldehyde synthesis
   (iv) Riemer Tiemann Reaction. 4

(b) Explain the following reactions :
   (i) Wittig reaction
   (ii) Clemmensen reaction. 4

B.Sc. 4th Semester (Hons.) (New Scheme)

Examination, May–2016

CHEMISTRY

Paper–CH(H)-208 P-25

Organic Chemistry

Time allowed : 3 hours] *[Maximum marks : 40*

Note : ***Question No. 1 is compulsory.*** *Select* ***one*** *question from each section. Attempt* ***five*** *questions in all. All questions carry equal marks.*

1. (a) What is coupling reaction ? 8
   (b) Define Fermi Resonance ?
   (c) Why is diazotisation carried always below 278 K.
   (d) What is Hinsberg's reagent ?
   (e) Write chemical equation for the formation of picrates.
   (f) Complete the following reaction :
   $C_6H_5CHO + Conc.\ NaOH \rightarrow$
   (g) Arrange the following in increasing order of their boiling point
   CH_3CHO, CH_3COCH_3, $CH_3CH_2CH_3$
   (h) Write any one method of preparation of Ethanenitrib.

Section–A

2. (a) Write short note on following : 4
   (i) Selection rule
   (ii) Finger Print Region.

(b) How will you distinguish the following pairs on the basis of IR spectroscopy. 4

(i) CH_3CH_2COOH and CH_3COOCH_3

(ii) C_2H_5OH and C_6H_5OH

3. (a) How can IR spectroscopy be used to distinguish between : 4

(i) Intermolecular and Intramolecular H-bonding

(ii) A phenol and an alcohol

(b) Discuss briefly the principle and applications of Infrared Spectroscopy. 4

Section–B

4. (a) Explain the effect of substituents on the basicity of aromatic amines. 2

(b) Starting from aniline, how will you prepare the following : 2

(i) p-Bromoaniline

(ii) Sulphanilic acid.

(c) Write short note on the following : 4

(i) Phase transfer catalyst

(ii) Reductive amination of aldehydes.

5. (a) Explain any one method for the separation of a mixture of 1°, 2° and 3° amines. 4

(b) Explain the following terms :

(i) Hofmann Bromamide reaction

(ii) Reduction of nitriles. 4

Section–C

6. (a) Suggest a suitable mechanism for diazotisation reaction. 4

(b) Write any two method of preparation of :

(i) Isocyanides

(ii) Cyanides 4

7. (a) Nature of reduction product of Nitrobenzene depends upon nature of reducing agent and pH of reaction medium. Explain. 4

(b) How will you prepare :

(i) Nitroethane from Ethylchloride

(ii) Picric acid from Phenol

(iii) Nitrobenzene from benzene

(iv) Azoxybenzene from Nitrobenzene 4

Section–D

8. (a) Explain the following reactions :

(i) Baeyer Villiger Oxidation of ketones

(ii) Mannich Reaction. 4