(c) How will you prepare primary amine by Hoffmann bromamide reactions ? **2**

Section B

6. (a) What is Gattermann reaction ? **2**

(b) Convert the following :

(i) Aniline into 1, 3, 5-tribromobenzene **2**

(ii) p-toluidine into p-toluic acid. **2**

7. (a) Explain coupling reaction of phenol with diazonium chloride with mechanism. Give reason why basic medium is required for this coupling reaction ? **3**

(b) Prepare the following using diazonium salt : **3**

(i) Iodobenzene

(ii) Nitrobenzene

(iii) Phenylhydrazine.

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B. Sc. EXAMINATION, 2026

(Fourth Semester)

(Re-appear Only)

CHEMISTRY

Paper–XIII

CH-206

Organic Chemsistry

Time : 3 *Hours*] [*Maximum Marks :* 32

Before answering the question-paper, candidates must ensure that they have been supplied with correct and complete question-paper. No complaint, in this regard will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting *two* questions from each Section. Q. No. **1** is compulsory.

(Compulsory Question)

1. (a) Out of aldehydes or ketones which one absorb at higher wave number and why ? **2**

(b) Aliphatic aldehydes and ketones are more reactive corresponding to their aromatic compounds. Why ? **2**

(c) Why excess of mineral acid is used for preparation of diazonium salt ? **2**

(d) Explain Hoffmann bromamide reaction with mechanism. **2**

Section A

2. (a) Explain *two* important applications of IR spectroscopy. **2**

(b) Calculate the number of fundamental absorption bands in H_2O molecule. **2**

(c) What is vibrational coupling in IR spectroscopy ? **2**

3. (a) What are stretching vibrations ? Give their types. **2**

(b) How will you differentiate between following on the basis of infrared spectroscopy ? **2**

(i) Acetaldehyde and ethanolz

(ii) Acetic acid and ethanol.

(c) Prepare primary amine by reductive amination of aldehyde and ketone. **2**

4. (a) Which one is more basic and why ? Aliphatic amines or Aromatic amines. **3**

(b) Give the following reactions : **3**

(i) Hoffmann Ammonolysis Reaction

(ii) Gabriel Phthalimide Reaction.

5. (a) Distinguish between 1°, 2° and 3° amines using nitrous acid. **2**

(b) Explain the mechanism of electrophilic substitution in arylamines. **2**

8. (a) Explain the following with mechanism :

(i) Perkin reaction **2**

(ii) Mannich reaction. **2**

(b) Nucleophilic addition to carbonyl is pH dependent. Explain. **2**

9. (a) What are PCC and PDC ? Give their advantages. **3**

(b) What happens when : **3**

(i) Formaldehyde is treated with conc. NaOH

(ii) Acetaldehyde is treated with excess of ethanol

(iii) Acetaldehyde is treated with phenylhylinydrazine.

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