

(OCH30212)

M.Sc. DEGREE EXAMINATION, DECEMBER 2019.

Third Semester

Organic Chemistry

Paper II — ORGANIC REACTIONS AND
MECHANISMS

(Regulation 2012)

Time : Three hours

Maximum : 70 marks

Answer ALL questions.

1. (a) Explain Claisen, Aldol condensation reactions.
(b) Explain Cannizzaro reaction with mechanism.

Or

2. (a) Explain Peterson Reaction with examples.
(b) Explain Stille and McMurray Reactions.
3. (a) Write a note on Oxidation Reactions.
(b) Explain Oppenauer Oxidation with examples.

Or

4. (a) Discuss per acids reactions in oxidation.
(b) Explain Ozonolysis reaction with examples.
5. (a) Explain Pinacole-Pinacolone Rearrangement.
(b) Explain Witting rearrangement reactions.

Or

6. (a) Explain Baeyer-Villiger Rearrangement reaction with examples.
(b) Explain Sommelet-Hauser Rearrangement.
7. (a) Explain M.O. Theory.
(b) Discuss correlation diagram methods.
- Or
8. (a) Explain Aza-cope Rearrangement Reaction.
(b) Write a note on Woodward Hoffman Rules.
9. (a) Explain Paterno-Buchi Reaction.
(b) Explain Photo-Fries Rearrangement.

Or

10. Discuss Norrish Type-I and Norrish Type-II reactions with examples.

(OCH30312)

M.Sc. DEGREE EXAMINATION, DECEMBER 2019.

Third Semester

Organic Chemistry

Paper III — ORGANIC SYNTHESIS

(Regulation 2012)

Time : Three hours

Maximum : 70 marks

Answer ALL questions.

All questions carry equal marks.

1. (a) Explain Aldol reaction.
(b) Write a note on Sulphur ylides.

Or

2. (a) Discuss synthetic applications of carbenes.
(b) Write a note on umplong.
3. (a) Discuss preparation of alkenes from arylsulphonyl hydrazones.
(b) Explain witting reaction.

Or

4. (a) Write a note on fragmentation reactions.
(b) Explain stereospecific synthesis from 1,2-diols.
5. (a) Explain Diels Alder and related reactions.
(b) Write a note on Ene reaction.

Or

6. (a) Discuss 1,3-dipolar cyclo addition reactions.
(b) Explain Asymmetric diels-Alder reaction.
7. (a) Write a note on Miscellaneous reactions.
(b) Explain Hoffmann-Loeffler-Freytag reaction

Or

8. Discuss photolysis of organic nitrites and Hypohalites.
9. (a) Write C-N disconnections with examples.
(b) Explain linear synthesis with examples.

Or

10. (a) Discuss chemo, regio and stereo selectivity with examples.
(b) Explain Retero-synthetic analysis.

(OCH30412)

M.Sc. DEGREE EXAMINATIONS, DECEMBER 2019.

Third Semester

Organic Chemistry

Paper IV – ORGANIC REAGENTS, HETEROCYCLIC
CHEMISTRY AND NATURAL PRODUCTS

(Regulation 2012)

Time : Three hours

Maximum : 70 marks

Answer ALL questions.

1. (a) Write preparation of organoboranes with examples.
(b) Write a note on Protonolysis of Boranes.

Or

2. (a) Discuss free radical reactions of organoboranes.
(b) Explain functional group transformations of organoboranes.

3. (a) Discuss synthetic applications of α -silyl carbanion.
(b) Write a note on the β -effect

Or

4. (a) Discuss synthetic applications of organo silicon compounds.
(b) Write a note on Peterson Olefination.
5. (a) Explain preparation of Grignard reagents.
(b) Explain preparation of alkyl lithium reagents with examples.

Or

6. (a) Write organo palladium reagents.
(b) Discuss synthetic applications of organo palladium reagents.
7. (a) Explain synthesis of Oxetanes.
(b) Explain synthesis of Furan.

Or

8. (a) Discuss reactions of Oxiranes.
(b) Write reactions of Indole.
9. (a) Discuss application and classifications of Antibiotics.
(b) Explain synthesis of penicillin - G.

Or

10. (a) Discuss structural elucidation of Quinine.
(b) Explain bio synthesis of Quercetin.

(OCH30116)

M.Sc. DEGREE EXAMINATION, DECEMBER 2019.

Third Semester

Organic Chemistry

Paper I — ADVANCED ORGANIC SPECTROSCOPY

(Regulation 2016)

Time : Three hours

Maximum : 70 marks

Answer ALL questions.

All questions carry equal marks.

1. (a) Explain J values for ABC, AMX.
(b) Explain about PMR spectrum.

Or

2. (a) Write a note on Nuclear Overhauser Effect.
(b) Discuss about chemical shift reagents.

3. (a) Write typical examples of CMR Spectroscopy.
(b) Write a note on Coupling Constants.

Or

4. Discuss similarities and difference between PMR and CMR.

5. (a) Explain COSY importance.
(b) Explain importance of INEPT.

Or

6. (a) Explain definition and importance of HETZDJ.

- (b) Give importance of HOMCOR.

7. (a) Write a note on Octant Rule.
(b) Write a note on α -Halo Keto Rule.

Or

8. (a) Explain ORD and CD curves in detail.
(b) Write a note on Cotton Effect.

9. How to explain structural elucidation of organic compounds using ^1H -NMR and ^{13}C -NMR Spectroscopy?

Or

10. Explain mass spectroscopy with examples.

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M.Sc. DEGREE EXAMINATION, DECEMBER 2019.

Third Semester

Organic Chemistry

Paper II — ORGANIC REACTIONS AND
MECHANISMS

(Regulation 2016)

Time : Three hours

Maximum : 70 marks

Answer ALL questions.

All questions carry equal marks.

1. (a) Explain oppenauer oxidation.
(b) Discuss oxidation reactions by using Ag_2CO_3 .

Or

2. (a) Discuss oxidation reactions with SeO_2 and MnO_2 .
(b) Explain epoxidation reactions with examples.

3. (a) Explain reduction reactions with metal in liquid ammonia.
(b) Explain Wolff-Kishner reduction.

Or

4. Discuss reduction by hydride transfer reagents with examples.

5. (a) Explain Claisen rearrangement.
(b) Explain Wagner-Meerweian rearrangement.

Or

6. (a) Explain Baeyer-Villiger rearrangement.
(b) Explain Benzidine rearrangement.

7. (a) Explain Woodward-Hoffman rules.
(b) Discuss (2+2) and (4+2) cyclo addition reactions with examples.

Or

8. (a) Define pericyclic reactions with examples.
(b) Explain Electrocyclic reactions with examples.

9. (a) Explain photo Fries rearrangement.
(b) Explain Barton reaction.

Or

10. (a) Discuss Narrish type II reactions.
(b) Discuss photo reduction and photochemical rearrangement reactions with examples.

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Third Semester

Organic Chemistry

Paper III – ORGANIC SYNTHESIS

(Regulation 2016)

Time : Three hours

Maximum : 70 marks

Answer ALL questions.

All questions carry equal marks.

1. (a) Explain Aldol reaction with examples.
(b) Discuss alkylations via enolate reactions.
Or
2. (a) Write a note on Umplong reactions.
(b) Explain synthetic applications of carbenes.
3. (a) Explain stereospecific synthesis from 1,2 -diols.
(b) Discuss fragmentation reactions with examples.

Or

4. (a) Explain witting reaction.
(b) How to synthesis of alkenes from arylsulphonyl hydrazones.
5. (a) Explain Diels - Alder reaction and its applications.
(b) Discuss Photosensitized Diels - Alder reaction.
Or
6. (a) Explain Ene reaction with examples.
(b) Explain Cyclo addition reactions.
7. (a) Explain Barton reaction.
(b) Discuss photolysis of organic nitrites and hypohalites.
Or
8. (a) Explain Hoffmann-Loeffler Freytag reaction.
(b) Write a note on miscellaneous reactions.
9. (a) Explain Retro - synthetic analysis.
(b) Discuss regio and sterio selectivity with examples.
Or
10. Write a note on C-C disconnection and C-N disconnection reactions with examples.

(OCH30416)

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Third Semester

Organic Chemistry

Paper – IV : ORGANO METALLIC CHEMISTRY,
HETEROCYCLIC CHEMISTRY AND
NATURAL PRODUCTS

(Regulation 2016)

Time : Three hours

Maximum : 70 marks

Answer ALL questions.

All questions carry equal marks.

1. (a) Discuss preparation of organo boranes
(b) Discuss hydroboration with 9-BBN and
thexyl borane.

Or

2. (a) Explain free radical reactions of organo
boranes with α - bromoesters.
(b) Write a note on cyanoborate process.
3. (a) Discuss synthetic applications of α - Silyl
carbanion and β - silyl carbonyl compounds.

Or

4. (a) Write a note on β - effect.
(b) Explain control of rearrangement of
carbonium ions by silicon.
5. (a) Write uses of organo metallic reagents in
aromatic annulation.
(b) How to prepare alkyl lithium reagents.

Or

6. (a) Discuss oxidative coupling of terminal
alkyne.
(b) Explain about organo palladium reagents.
7. (a) Explain synthesis of Thiazole.
(b) Explain reactivity of Oxazole.

Or

8. (a) Explain synthesis of Iso - Oxazole.
(b) Explain synthesis of Indole.
9. (a) Explain synthesis of Terramycin.
(b) Explain preparation of sulfa drugs.

Or

10. (a) Write isolation of Alkanoids.
(b) Discuss structural elucidation of Researpine.