

206 C-401-R

M.Sc. DEGREE EXAMINATION — MARCH/APRIL 2012.

FOURTH SEMESTER

Branch III (A) – Chemistry – Organic Chemistry

(Common to General Chemistry)

Paper I – ORGANIC SYNTHESIS – I

(R. R. from 2007-2008)

(For supplementary candidates i.e who appeared in April 2010 or earlier)

Time : 3 hours

Max. Marks : 80

Answer FOUR questions, choosing ONE from each Unit.

Sub-divisions (a), (b) and (c) 4, 6 and 10 marks respectively.

UNIT – I

1. (a) Write briefly about free radical reactions of organoboranes.
(b) Explain about the formation of c-c double bonds by using organo phosphorus reagents.
(c) Discuss the preparation and applications of sulphur ylides.

Or

2. (a) Explain the applications of organo boranes in the synthesis of alcohols.
(b) What is sulphur ylides? How are they prepared?
(c) Explain the electrophilic and nucleophilic character of triaryl phosphines with two examples each.

UNIT – II

3. (a) Write short notes on curtius rearrangement.
(b) Explain the reaction mechanism of Favorskii rearrangement.
(c) Explain the reaction mechanism and synthetic applications of Beckmann rearrangement.

Or

[P.T.O.]

M.Sc. DEGREE EXAMINATION — APRIL/MAY 2019.

FOURTH SEMESTER

Branch — Organic Chemistry

CHE OC 403 — ORGANIC SYNTHESIS - I

(Revised Syllabus w.e.f. 2015-2016)

(For campus students and affiliated college students
admitted during the years 2014-15 & 2015-16)

Time : 3 hours

Max. Marks : 70/80

SECTION - A

Answer any FOUR of the following. Each question carries 5 marks.

(Marks : $4 \times 5 = 20$)

1. Describe Mitsunobu reaction with suitable examples.
2. Write a note on Julia reaction.
3. Explain singlet and triplet states.
4. Write a note on Barton reaction.
5. Write a note on 1,3-Dipolar cycloadditions.
6. Write a note on oxy-cope rearrangements.
7. What are thermosetting plastics? Give examples.
8. Write a note on ion exchange resins.

SECTION - B

Answer ALL questions. Each question carries $12\frac{1}{2}/15$ marks.

(Marks : $4 \times 12\frac{1}{2} = 50/4 \times 15 = 60$)

9. (a) Describe the use of hydroboration for the preparation of alcohols, amines and carbonyl compounds.

Or

- (b) Describe the use of witting reaction for the preparation of various olefins.

[P.T.O.]

M.Sc. DEGREE EXAMINATION — MARCH/APRIL 2012

FOURTH SEMESTER

Branch III — Organic Chemistry

Paper I — ORGANICS SYNTHESIS — I

(w.e.f. 2010-2011)

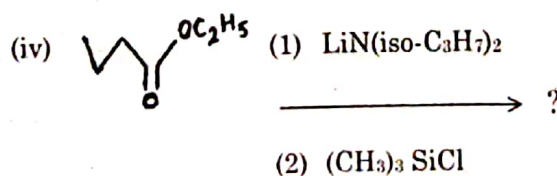
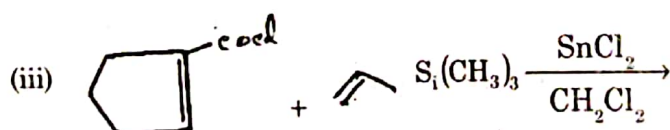
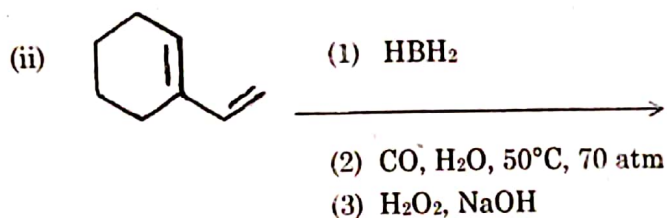
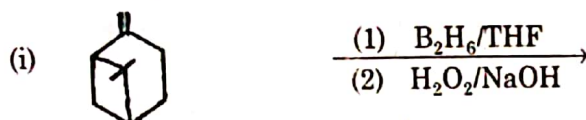
Time : 3 hours

Max. Marks : 80

Answer any FOUR questions, choosing ONE question from each Unit.
 Sub-divisions (a), (b) and (c) carries 4, 6, and 10 marks respectively.

UNIT - I

1. (a) What is Hydroboration? Explain with suitable examples. (4)
- (b) Write a note on reactions of quaternary phosphonium compounds with examples. (6)
- (c) Predict the product(s) in the following reactions : (10)



Or

2. (a) Describe the significance of sulphur ylides in organic synthesis. (4)
- (b) Explain the use of alkenyl boranes in organic synthesis with examples. (6)
- (c) Discuss in detail the synthetic applications of silylcarbanions and β -silyl carbonium ions. (10)

[P.T.O.]

UNIT - II

3. (a) Write the mechanism of Wanger-Meerwin rearrangement with example. (4)
(b) Explain the following with suitable examples (i) Beckmann rearrangement (6)
(ii) Neber rearrangement.
(c) Write notes on the following : (10)
(i) Dakins rearrangement
(ii) Favovskii rearrangement
(iii) Hofmann rearrangement.

Or

4. (a) What is Demjana rearrangement? Explain with suitable examples. (4)
(b) Write the rearrangement involving carbocation as intermediate with at least two examples. (6)
(c) Write down the mechanistic details of the following rearrangements. Illustrate with examples. (10)

UNIT - III

5. (a) Write a note on Frank-Condon principle. (4)
(b) Write an account on Paterno-Buchi reaction. (6)
(c) Write a note on photochemistry of refins. (10)

Or

6. (a) Explain photo reduction reactions with suitable examples. (4)
(b) Write an account on photochemistry of α, β unsaturated ketones. (6)
(c) Write a note on photochemistry of aromatic. (10)

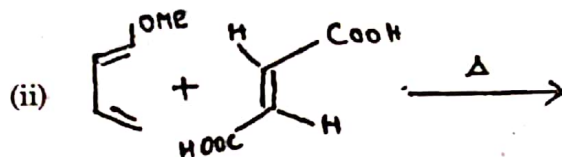
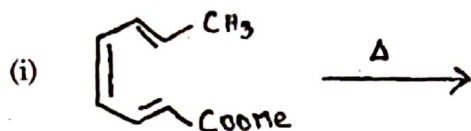
UNIT - IV

7. (a) Explain 1,3-supra facial and antarafacial hydrogen shifts. (4)
(b) Write briefly on hexatriene-cyclohexadiene photo chemical interconversion. (6)
(c) Write an account on : (10)
(i) Claiseu rearrangement
(ii) Fluxional tautomerism
(iii) Aza-cope rearrangement.

Or

8. (a) Predict the products formed in the following reactions

(4)



- (b) Explain the importance of symmetry elements in pericyclic reactions. (6)
- (c) (i) What is PMO approach? Explain its use in understanding the $\pi^4s + \pi^2s$ cyclo-addition reaction with suitable examples. (10)
- (ii) Explain FMO approach to understand the $4n+2$ type of electrocyclic reactions. (10)

M.Sc. DEGREE EXAMINATION, MAY- 2017

FOURTH SEMESTER

Branch : CHEMISTRY (ORGANIC CHEMISTRY)

CHE OC 401 : ORGANIC SYNTHESIS - I

(for supplementary candidates who appeared in 2015 and earlier)

Time : 3 Hours

Max. Marks : 80

Answer any **FOUR** of the following choosing one from each unit Sub-divisions (a) (b) & (c) carries 4, 6, & 10 marks respectively.

UNIT - I

1. a) Explain Paterson's olefination.
b) Explain hydroboration and free radical reactions of organoboranes.
c) Explain about silicon reagents.

OR

2. a) Explain about quaternary phosphonium compounds.
b) Explain various reactions with sulphur reagents.
c) Explain about boron reagents in detail.

UNIT - II

3. a) Explain Schmidt re-arrangement.
b) Explain pinacol-pincole re-arrangement.
c) Explain any two re-arrangements involving electron deficient oxygen.

OR

4. a) Explain claisen re-arrangement.
b) Explain Neber re-arrangement.
c) Explain any two re-arrangements involving electron deficient carbon.

UNIT - III

5. a) What is frank condon principle.
b) Explain Norrish type - I reaction.
c) Explain Jablonski diagram.

OR

6. a) Explain photoreduction.
b) Explain photochemistry of 1,3 butadienes.
c) Explain Becton reaction , Paterno buchi reaction.

UNIT - IV

7. a) What are electrocyclic reactions?
b) Explain electrocyclic ring closure reactions.
c) Explain frontier orbital diagrams of allyl system.

OR

8. a) Explain Ene reaction.
b) Explain cope, oxy cope re-arrangements.
c) Explain $(4n+2)$ cycloadditions with the FMO approach.



M.Sc DEGREE EXAMINATION – MAY, 2017

Branch : ORGANIC CHEMISTRY

Fourth Semester

CHE OC 401 : ORGANIC SYNTHESIS – I

(for supplementary candidates who appeared in 2016 only)

Time: 3 Hours

Max. Marks: 80

Answer any Four of the following choosing one from each unit Sub-divisions
(a) (b) & (c) carries 4, 6, & 10 marks respectively.

UNIT – I

1. (a) Explain hydroboration
(b) Explain peterson's Olefination with examples
(c) Explain formation of carbon-carbon double bonds using phosphorous reagents with examples

Or

2. (a) Explain bonding in Boron.
(b) Explain conversion of alcohols to alkyl halides.
(c) Explain sulphur ylides preparation, Julia reaction in detail.

UNIT - II

3. (a) Explain singlet and triplet states
(b) Explain Norrish type – I reaction
(c) Explain cis-trans isomerism, photo addition reactions of aromatic compounds

Or

4. (a) Explain dimensation reactions of olefins.
(b) Explain Norrish type-II reaction.
(c) Explain Jablonski diagram in detail.

UNIT-III

5. (a) Explain Chelotropic reactions.
(b) Explain Frontier orbitals of ethylene 1,3 butadiene.
(c) Explain cope and oxy-cope rearrangements.

Or

6. (a) Explain pericyclic reactions.
(b) Explain FMO approach.
(c) Explain 3,3 and 5,5 sigmatropic rearrangements.

UNIT - IV

7. (a) Explain emulsion polymerization.
(b) Explain classification of polymers.
(c) Explain applications of polymers in various fields.

Or

8. (a) Explain Epoxy resins.
(b) Explain Thermoplastics and stereo-specific polymers
(c) Explain preparation of Nylons, urea-formaldehyde, melamine resins.
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M.Sc.DEGREE EXAMINATION, MAY- 2017
FOURTH SEMESTER
Branch : CHEMISTRY
SPECIALIZATION : ORGANIC CHEMISTRY
CHE OC 401 : ORGANIC SYNTHESIS-I
(w.e.f. 2016 - 17)

(Common to Supply candidates who appeared in 2016 only)

Time : 3 Hours

Max. Marks : 70/80

Section - A

Answer any **FOUR** questions. All questions carry equal marks. (4 × 5 = 20)

1. Describe Wittig reaction with an example.
2. Write a note on Julia reaction.
3. Explain Franck-Condon Principle.
4. Describe Photo-Fries rearrangement with an example.
5. What are Cheletropic reactions? Give an example.
6. Explain Cope rearrangement with an example.
7. Explain addition polymerization with an example.
8. Write the preparation and uses of Phenol-formaldehyde resin.

Section - B

Answer **ALL** questions. All questions carry equal marks. (4 × 12½ = 50/4 × 15 = 60)

9. a) Describe the preparation of alcohols and amines using hydroboration with examples.

OR

- b) Describe Peterson olefination and Corey-Winters reaction with examples.

10. a) Describe Norrish Type-I reaction with appropriate examples.

OR

- b) Explain Paterno-Buchi reaction with an example.

11. a) Describe Woodward-Hoffmann correlation diagrams with suitable examples.

OR

- b) Describe Claisen rearrangement with suitable examples.

12. a) Describe preparation and application of Thermosetting and Thermoplastic polymers.

OR

- b) Write the preparation and a few industrial applications of Urea-formaldehyde and melamine resins.



M.Sc. DEGREE EXAMINATION — MARCH/APRIL 2012.

FOURTH SEMESTER

Branch III (A) – Chemistry – Organic Chemistry

(Common to General Chemistry)

Paper I – ORGANIC SYNTHESIS – I

(R. R. from 2007-2008)

(For supplementary candidates i.e who appeared in April 2010 or earlier)

Time : 3 hours

Max. Marks : 80

Answer FOUR questions, choosing ONE from each Unit.

Sub-divisions (a), (b) and (c) 4, 6 and 10 marks respectively.

UNIT – I

1. (a) Write briefly about free radical reactions of organoboranes.
(b) Explain about the formation of C-C double bonds by using organo phosphorus reagents.
(c) Discuss the preparation and applications of sulphur ylides.

Or

2. (a) Explain the applications of organo boranes in the synthesis of alcohols.
(b) What is sulphur ylides? How are they prepared?
(c) Explain the electrophilic and nucleophilic character of triaryl phosphines with two examples each.

UNIT – II

3. (a) Write short notes on Curtius rearrangement.
(b) Explain the reaction mechanism of Favorskii rearrangement.
(c) Explain the reaction mechanism and synthetic applications of Beckmann rearrangement.

Or

[P.T.O.]

4. (a) Give the mechanism of Shapiro reactions.
- (b) Explain the mechanism of pinacol pinacolone rearrangement and wagner Meerwin rearrangements.
- (c) Write any two synthetic applications of the following.
 - (i) Arudt-gistert synthesis
 - (ii) Schmidt
 - (iii) Fries rearrangements.

UNIT - III

5. (a) Write short notes on oppenauer oxidation.
- (b) Explain the differences between the catalytic reduction and reduction by metals in liquid NH_3 .
- (c) Explain in detail the synthetic utility of chromium species in oxidation reactions.

Or

6. (a) Write a note on microbial reductions.
- (b) Explain the various types of oxidations involved in the conversions of alcohols to carbonyl compounds.
- (c) Give an account of the following
 - (i) Baeyer villiger oxidations
 - (ii) Prevost reactions.

UNIT - IV

7. (a) Differentiate between thermoplastics and thermosetting polymers by giving suitable examples.
- (b) Discuss the preparation and industrial applications of urea-formaldehyde and phenol formaldehyde resins.
- (c) Give an account of catalytic polymerizations reactions with suitable examples.

Or

8. (a) Write briefly on bulk polymerisation.
- (b) What are fibers and elastomers? Give any two methods of preparation of each.
- (c) Explain the addition polymerisation by free radical and ionic mechanisms.

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M.Sc. DEGREE EXAMINATION — SEPTEMBER 2020

FOURTH SEMESTER

Branch — Organic Chemistry

Paper I (CHE OC-401) — ORGANIC SYNTHESIS - I

(Revised Syllabus w.e.f 2017-2018 for Campus Students and Affiliated College Students)

Time : 3 hours

Max. Marks : 80

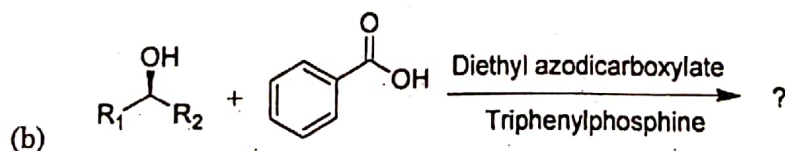
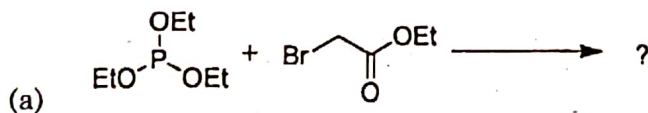
SECTION - A

Answer any FOUR questions. All questions carry equal marks.

(Marks : $4 \times 5 = 20$)

1. Discuss the influence of trialkyl silyl reagents in electrophilic reactions.

2. Predict the major products in the following reactions.



3. Write a note on photo-Fries rearrangement.

4. What are Jablonski diagrams? Draw the diagrams for various photophysical processes.

5. Provide an account on the classification of pericyclic reactions.

6. Describe why maleic anhydride reacts with 1, 3-butadiene but not at all with ethylene under thermal conditions.

7. Classify the polymers based on their physical properties with suitable examples.

8. Discuss the condensation polymerization with suitable mechanism and examples.

[P.T.O.]

SECTION - B

Answer ALL questions. All questions carry equal marks.
(Marks : $4 \times 15 = 60$)

9. (a) Discuss the stereochemistry, mechanism and applications of the following.
- Julia olefination reaction.
 - Peterson olefination reaction.

Or

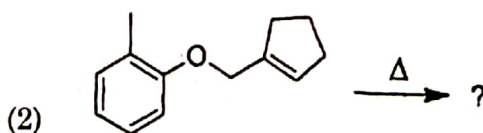
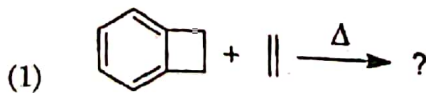
- (b) Provide an account on the following:
- Perkow reaction.
 - Synthesis of alcohols and carbonyl compounds *via* hydroboration.
 - Corey-Winter alkene synthesis.

10. (a) Give a note on the following:
- Photochemistry of dienones.
 - Photochemistry of aromatic compounds.
 - Norrish type-II photochemical process.

Or

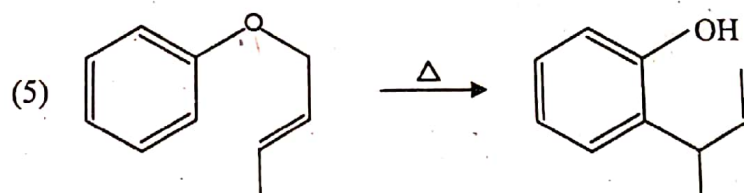
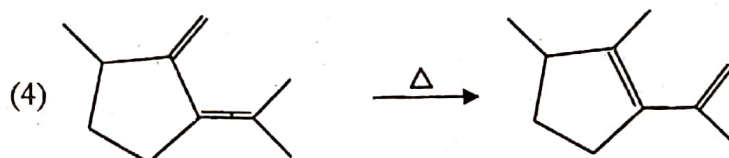
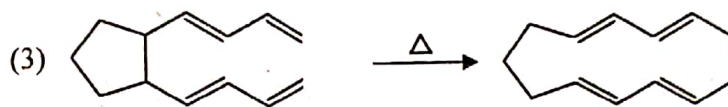
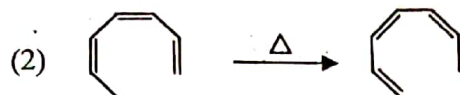
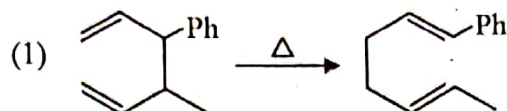
- (b) Discuss the following:
- Paternò - Büchi reaction.
 - Barton reaction.
 - Photoreduction reactions.

11. (a) Write the following :
- Give the mechanism and applications of Claisen rearrangement.
 - Discuss the 1, 3-dipolar cycloaddition reactions.
 - Predict the products in the following reactions.

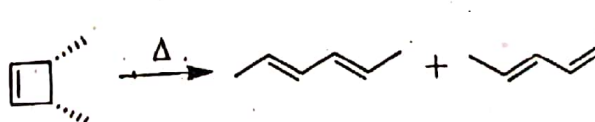


Or

- (b) (i) Write the name of sigmatropic rearrangement that involved in the following reactions and show with arrows the direction of electronic rearrangement that involved in each.



- (ii) The cis-3, 4-dimethylcyclobutene on heating participates in ring opening to give the following products with 99% and 1%. Explain why it happens like this.



12. (a) Describe the water in oil emulsion polymerization.
Or

- (b) Provide a brief note on the following:

- (i) Melamine-formaldehyde resins.
- (ii) Epoxy resins.
- (iii) Ion-exchange resins.

M.Sc. DEGREE EXAMINATION — MARCH/APRIL 2012

FOURTH SEMESTER

Branch III — Organic Chemistry

Paper I — ORGANICS SYNTHESIS — I

(w.e.f. 2010-2011)

Time : 3 hours

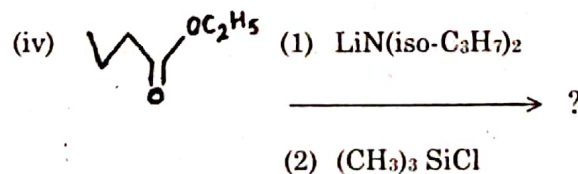
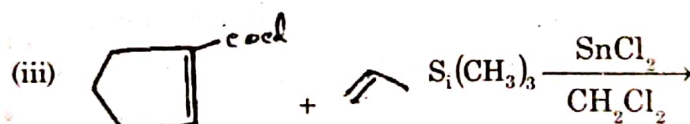
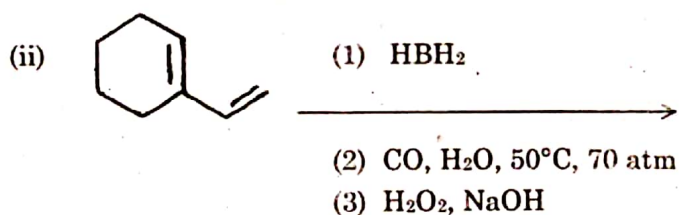
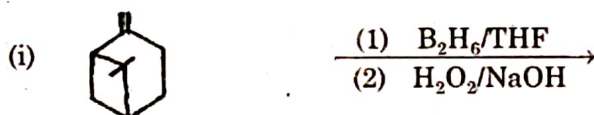
Max. Marks : 80

Answer any FOUR questions, choosing ONE question from each Unit.

Sub-divisions (a), (b) and (c) carries 4, 6, and 10 marks respectively.

UNIT - I

1. (a) What is Hydroboration? Explain with suitable examples. (4)
 (b) Write a note on reactions of quaternary phosphonium compounds with examples. (6)
 (c) Predict the product(s) in the following reactions : (10)



Or

2. (a) Describe the significance of sulphur ylides in organic synthesis. (4)
 (b) Explain the use of alkenyl boranes in organic synthesis with examples. (6)
 (c) Discuss in detail the synthetic applications of silylcarbanions and β -silyl carbonium ions. (10)

[P.T.O.]

UNIT - II

3. (a) Write the mechanism of Wanger-Meerwin rearrangement with example. (4)
(b) Explain the following with suitable examples (i) Beckmann rearrangement (6)
(ii) Neber rearrangement. (10)
(c) Write notes on the following :
(i) Dakins rearrangement
(ii) Favovskii rearrangement
(iii) Hofmann rearrangement.

Or

4. (a) What is Demjana rearrangement? Explain with suitable examples. (4)
(b) Write the rearrangement involving carbocation as intermediate with at least two examples. (6)
(c) Write down the mechanistic details of the following rearrangements. Illustrate with examples. (10)

UNIT - III

5. (a) Write a note on Frank-Condon principle. (4)
(b) Write an account on Paterno-Buchi reaction. (6)
(c) Write a note on photochemistry of refins. (10)

Or

6. (a) Explain photo reduction reactions with suitable examples. (4)
(b) Write an account on photochemistry of α, β - unsaturated ketones. (6)
(c) Write a note on photochemistry of aromatic. (10)

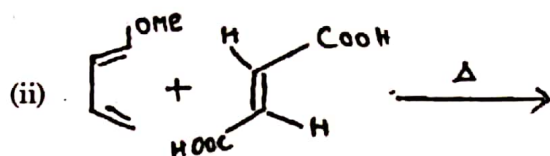
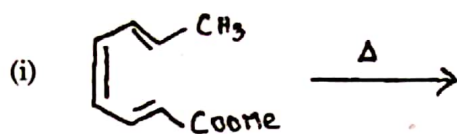
UNIT - IV

7. (a) Explain 1,3-supra facial and antarafacial hydrogen shifts. (4)
(b) Write briefly on hexatriene-cyclohexadiene photo chemical interconversion. (6)
(c) Write an account on : (10)
(i) Claiseu rearrangement
(ii) Fluxionel tautomerism
(iii) Aza-cope rearrangement.

Or

8. (a) Predict the products formed in the following reactions

(4)



(b) Explain the importance of symmetry elements in pericyclic reactions.

(6)

(c) (i) What is PMO approach? Explain its use in understanding the $\pi^4s + \pi^2s$ cyclo-addition reaction with suitable examples.

(ii) Explain FMO approach to understand the $4n+2$ type of electrocyclic reactions.

(10)

206-OC-404 R

M.Sc. DEGREE EXAMINATION — MARCH/APRIL 2012

FOURTH SEMESTER

Branch III – Organic Chemistry

Paper IV — CHEMISTRY OF NATURAL PRODUCTS

(w.e.f. 2010-2011)

Max. Marks : 80

Time : 3 hours

Answer FOUR questions, choosing ONE question from each Unit.
Sub-divisions (a), (b) and (c) carries 4, 6 and 10 marks respectively.

UNIT – I

1. (a) Discuss the stereochemistry of FARNESOL. (4)
(b) Explain total structure and stereo chemistry of iodinene. (6)
(c) (i) Write structure and synthesis of Zingiberene. (10)
(ii) Discuss biogenesis of sesquiterpenoid.

Or

2. (a) Write ozonolysis and oxidation reaction in terpenoids. (4)
(b) Discuss the isolation and separation techniques of terpenoids. (6)
(c) Discuss the total reactions and spectroscopic studies on Abietic acid. (10)

UNIT – II

3. (a) Write pharmaceutical applications of alkaloids, with suitable examples. (4)
(b) Discuss total synthesis of cholchicine. (6)
(c) Discuss the structure and synthesis of morphine. (10)

Or

4. (a) Explain the oxidation reactions in structure determination of strychnine. (4)
(b) Write short note on following methods. (6)
(i) Hoffmann exhaustive methylation
(ii) Emde's degradation.
(c) Explain the structure and synthesis of Rererpine. (10)

UNIT – III

5. (a) Discuss the synthesis of progesterone from stigmasterol. (4)
(b) Explain reactions of Estrone. (6)
(c) Discuss the total structure of the cholesterol. (10)

Or

[P.T.O.]

6. (a) Write short note on peptide synthesis. (4)
(b) Discuss the structure and synthesis of oxytocin. (6)
(c) Explain the structure of DNA. (10)

UNIT - IV

7. (a) Write the biological importance of flavanoids. (4)
(b) Discuss the structure and synthesis of Quercetin. (6)
(c) Write a brief note on kaempferol and diadazene. (10)

Or

8. (a) Discuss the synthesis of huteolin. (4)
(b) Write the isolation and structure of Apegenin. (6)
(c) Write a note on biosynthesis of flavanoids with an example. (10)
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M.Sc. DEGREE EXAMINATION APRIL/MAY - 2015

FOURTH SEMESTER

Branch III : Chemistry

Spl : Organic Chemistry

Paper - I : Organic Synthesis - I

(Revised syllabus w.e.f. 2010 - 11)

(Common to suppl. cand. also i.e, who appeared in April 2010 exam and earlier)

Time : 3 Hours

Max. Marks :80

Answer any **Four** questions. choosing **ONE** question from each unit.

sub divisions **a,b and c** carries **4,6,10 marks** respectively.

UNIT - I

1. a) Explain the applications of phosphorous in organic synthesis
b) Give an account of silicon reagents per person's Motivation
c) Write notes on:
 - i) Carbon-Carbon Double bonds
 - ii) Organo boranes

OR

2. a) Explain the electronic structure of boron and sulphur in their compounds.
b) Discuss the preparation and reactivity of sulphoryle combining
c) How do you prepare the following
 - i) allyl silanes
 - ii) Alkenyl silanes

UNIT - II

3. a) Write about Claisen rearrangement
b) Give two examples of arrangements in valency electron deficient oxygen
c) Discuss the importance of Pinacol-Pinacolone and Benzil-Benzilic acid rearrangement in organic synthesis

OR

4. a) Explain Fries rearrangement
b) What is electron deficient oxygen? Explain Dakin rearrangement
c) Discuss Hoffman rearrangement and Bayer-Villiger rearrangement

Unit - III

5. a) Define Quantum efficiency and quantum yield.
b) Give an account of Norrish Type-I and Norrish Type II cleavages.
c) Discuss the photochemistry of 1,3 butadiene and p-benzo quinone

OR

6. a) What are $n - \pi^*$ and $\pi - \pi^*$ transitions.
b) Explain photo substitution reactions of benzene derivatives
c) Write notes on
i) Photo chemicals of enones
ii) Cis-trans isomerisation

Unit - IV

7. a) How do you classify pericyclic reaction.
b) Give an account of oxy Cope rearrangement
c) Discuss Woodward-Hoffmann correlation diagrams

OR

8. a) Explain molecular orbital symmetry taking ethylene
b) What are electrophilic reactions? Discuss allyl systems
c) Write notes on
i) Ene reaction
ii) Hückel-Möbius approach
-

M.Sc.DEGREE EXAMINATION, MAY-2017
FOURTH SEMESTER
Branch : CHEMISTRY
SPECIALIZATION : ORGANIC CHEMISTRY
CHE OC 402 : ORGANIC SYNTHESIS-II
(w.e.f. 2016 - 17)

(Common to supplementary candidates who appeared in 2016 only)

Time : 3 Hours

Max. Marks : 70/80

Section - A

Answer any **FOUR** questions. All questions carry equal marks.

(4 × 5 = 20)

1. Explain Chemoselectivity with an example.
2. Write a note on Robinson annulation.
3. What is meant by retrosynthetic analysis? Explain.
4. Write the structure of Juvabione.
5. Write the structure of Plasmoquine and mention its activity.
6. Write the structure of Penicillin and mention its activity.
7. Explain the terms genetic code and replication.
8. What is meant by sequence determination? Explain.

Section - B

Answer **ALL** questions. All questions carry equal marks. (4 × 12½ = 50)(4 × 15 = 60)

9. a) Describe linear and convergent synthesis with appropriate examples.

OR

- b) Describe the protection methods for alcohols, carbonyl and carboxylic acids.

10. a) Write the structure and retrosynthetic analysis for Longifolene

OR

- b) Write the structure and retrosynthetic analysis for Taxol.

11. a) Describe the synthesis and activity of Chloroquine.

OR

b) Describe the synthesis and activity of Streptomycin.

12. a) Describe the synthesis of Oxytocin.

OR

b) Describe the structure and significance of RNA and DNA.



206-OC-402 R

M.Sc. DEGREE EXAMINATION — MARCH/APRIL 2012

FOURTH SEMESTER

Branch III — Organic Chemistry

Paper II — ORGANIC SYNTHESIS – II

(w.e.f. 2010-2011)

Time : 3 hours

Max. Marks : 80

Answer FOUR questions, choosing ONE question from each Unit.

Sub-divisions (a), (b), and (c) carries 4, 6 and 10 marks respectively.

UNIT – I

1. (a) Write differences between linear and convergent synthesis. (4)
- (b) Discuss the protecting groups of carbonyl and carboxyl groups with examples. (6)
- (c) Write a detailed notes on the following :
 - (i) Retro-synthetic analysis.
 - (ii) Functional group inter conversion
 - (iii) Synthons
 - (iv) Synthetic equivalent. (10)

Or

2. (a) Write a note on disconnection 1, 3-di carbonyl compounds. (4)
- (b) Explain the mechanism of Michael addition and Robinson annulation with suitable example. (6)
- (c) Write retro synthetic analysis for the following compounds : (10)
 - (i) Acetyl salicylic acid
 - (ii) 4-hydroxy acetanilide

UNIT – II

3. (a) What is enantio selectivity? Explain with examples. (4)
- (b) Write the mechanism of Sharpless epoxidation with examples. (6)
- (c) What is the importance of auxiliary controlled methods in Asymmetric synthesis? Explain with examples. (10)

Or

4. (a) What is asymmetric oxidation? Explain with at least one example. (4)
- (b) Write a note on chiral enolates. (6)
- (c) Write an account on the following : (10)
 - (i) Substrate selectivity
 - (ii) Borate reagents
 - (iii) Diastereo selectivity.

[P.T.O.]

UNIT - III

5. (a) Discuss the applications of phase transfer catalysts in few important reactions. (4)
(b) Write the definition and synthesis of ionic liquids. (6)
(c) Explain role of enamines as synthons for the synthesis of organic molecules. (10)

Or

6. (a) Write note on mechanism of catalytic action of phase transfer catalysts. (4)
(b) Discuss the principle, conditions and advantages of micro wave induced reactions. (6)
(c) Discuss the applications of ionic liquids in organic synthesis with examples. (10)

UNIT - IV

7. (a) Explain addition polymerization with examples. (4)
(b) Discuss the general applications of thermoplastics and thermosetting plastics. (6)
(c) Write the synthesis and applications of urea-formaldehyde and phenol-formaldehyde resins. (10)

Or

8. (a) Discuss the bulk and solution polymerization processes. (4)
(b) Discuss the general applications of fibers and elastomers. (6)
(c) Discuss the different types of classification of polymers based on: (10)
(i) Monomer
(ii) Structure
(iii) Physical properties
(iv) Nature of polymerization.
-

M.Sc. DEGREE EXAMINATION — SEPTEMBER 2020

FOURTH SEMESTER

Branch — Organic Chemistry

Paper II – (CHE OC - 402) — ORGANIC SYNTHESIS - II

(Revised Syllabus w.e.f 2017-2018 for Campus Students and Affiliated College Students)

Time : 3 hours

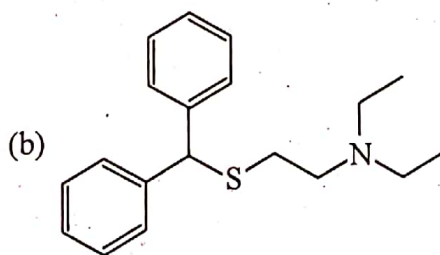
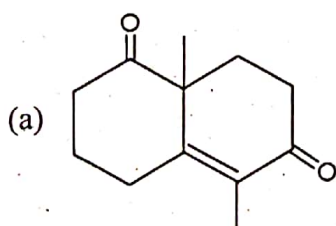
Max. Marks : 80

SECTION - A

Answer any FOUR questions. All questions carry equal marks.

(Marks : $4 \times 5 = 20$)

1. Explain the application of one group C-X disconnections in organic synthesis.
2. What is regioselectivity? Discuss its importance in organic synthesis.
3. Mention the uses of acetylenes in organic synthesis.
4. Analyse the synthesis of the following compounds.



5. Discuss the synthesis and bioactivity of chloramphenicol.
6. Write the synthesis and biological activity of quinacrine.
7. Discuss the genetic code.
8. Write a comment on the structure of RNA.

[P.T.O.]

SECTION - B

Answer ALL questions. All questions carry equal marks.

(Marks : $4 \times 15 = 60$)

9. (a) Write the various methods that are used for the formation of carbon-carbon single and double bonds.

Or

- (b) Give a brief note on the following:

- (i) Two group C-C disconnections in 1, 5- carbonyl compounds.
- (ii) Reversal of polarity.

10. (a) Discuss the retrosynthetic analysis and synthesis of longifolene and juvabione.

Or

- (b) Draw the retrosynthetic analysis and synthesis of taxol.

11. (a) Discuss the synthesis and bioactivity of the following:

- (i) Plasmoquine
- (ii) Novobiocin

Or

- (b) Draw the synthesis and describe the bioactivity of the following:

- (i) Streptomycin
- (ii) Paludrine

12. (a) Discuss the following:

- (i) Structure of oxytocin.
- (ii) Gene mutation.
- (iii) Confirmations and properties of proteins.

Or

- (b) Provide an account on the following:

- (i) Structure of DNA.
 - (ii) Peptide synthesis.
-

M.Sc. DEGREE EXAMINATION — MARCH/APRIL 2012

FOURTH SEMESTER

Branch III (A) : Chemistry – Organic Chemistry

(Common to General Chemistry)

Paper II : ORGANIC SYNTHESIS – II

(R.R. 2007-2008)

(For supplementary candidates i.e. who appeared April 2010 are earlier)

Time : 3 hours

Max. Marks : 80

Answer any **FOUR** questions, choosing **ONE** from each unit sub-divisions (a), (b) and (c) carries 4, 6 and 10 marks respectively.

UNIT – I

1. (a) Explain protection of carboxy compounds with examples.
(b) Explain functionalization of functional groups with examples.
(c) Discuss the two group C-X disconnections with suitable examples.

Or

2. (a) Explain interconversion of functional groups.
(b) Explain use of acetylenic compounds in organic synthesis.
(c) Discuss the two group C-C disconnections of 1,5-difunctionalised compounds with examples.

UNIT – II

3. (a) Explain diastereo-selectivity with suitable examples.
(b) Explain use of chiral reagents in asymmetric synthesis.
(c) Discuss the asymmetric reduction using lithium aluminium hydride.

Or

4. (a) Explain alkylation of chiral amines.
(b) Explain asymmetric Diels-Alder reaction.
(c) Write notes on the following :
 - (i) Sharpless epoxidation
 - (ii) Chiral enolates
 - (iii) Prechirality

[P.T.O.]

UNIT - III

5. (a) Explain the solid-liquid system in phase transfer catalyses.
(b) Explain the synthesis and physical properties of ionic liquids.
(c) Explain the application of microwave induced reactions in organic synthesis with any three examples.

Or

6. (a) Explain the role of enamines as synthons.
(b) Explain bio transformations in enzyme catalysed reactions.
(c) Explain the types, mechanism of catalysis and two applications of phase transfer catalysis.

UNIT - IV

7. (a) Explain Homogeneous catalytic hydrogenation.
(b) Explain synthesis and any two applications of Grignard Reagents.
(c) What are organometallic reagent? Explain.

Or

8. (a) Explain the synthesis and any one application of organo palladium reagents.
(b) Explain hydroformylation.
(c) Explain the synthesis and synthetic applications of organo mercury and organo copper compounds.
-

M.Sc. DEGREE EXAMINATION, MAY- 2017

FOURTH SEMESTER

Branch : ORGANIC CHEMISTRY

CHE OC 404 : CHEMISTRY OF NATURAL PRODUCTS

(For supplementary candidates who appeared in 2015 and earlier)

Max. Marks : 80

Time : 3 Hours

Answer any **FOUR** of the following choosing one from each unit Sub-divisions (a) (b) & (c) carries 4, 6, & 10 marks respectively.

UNIT - I

1. a) Structure of farnesol.
b) Stereochemistry of zingiberene.
c) Synthesis of lanosterol.

OR

2. a) Structure of candinene.
b) Stereochemistry of farnesol.
c) Structural elucidation of abietic acid.

UNIT - II

3. a) Explain isolation of alkaloids.
b) Explain stereochemistry of strychnine.
c) Explain structural elucidation of Hophine.

OR

4. a) Give structure of reserpine.
b) Explain general isolation of alkaloids.
c) Explain synthesis of colchicine.

UNIT - III

5. a) What are bile acids.
b) Explain biosynthesis of steroids.
c) Explain synthesis of Androsterone.

OR

6. a) What is genetic code?
b) Explain peptide synthesis.
c) Explain structure of DNA and RNA.

UNIT - IV

7. a) Explain about flavonoids.
b) Explain acetate pathway.
c) Explain synthesis of quercetin

OR

8. a) Explain importance of flavonoids.
b) Explain shikimic acid pathway.
c) Explain structural determination of luteolin.



M.Sc. DEGREE EXAMINATION — MARCH/APRIL 2012

FOURTH SEMESTER

Branch III (A) — Chemistry – Organic Chemistry

Paper IV — CHEMISTRY OF NATURAL PRODUCTS

(Revised Regulations 2007-2008)

(For Supplementary Candidates i.e. who appeared April 2010 are earlier)

Time : 3 hours

Max. Marks : 80

Answer FOUR questions, choosing ONE from each Unit.

Sub-divisions (a), (b), and (c) carries 4, 6 and 10 marks respectively.

UNIT – I

1. (a) Write the stereo chemistry of favuesol.
(b) Write the biosynthesis of Terpenoids with an example.
(c) Explain the structure and synthesis of Zimgeberece.

Or

2. (a) Write the isolation of Terpenoids.
(b) Explain the synthesis of cadinene.
(c) Discuss the structure and synthesis of Abietic acid.

UNIT – II

3. (a) How alkaloids are isolated from natural sources?
(b) Explain general methods of structure determination of alkaloids.
(c) Explain the structure and synthesis of morphine.

Or

4. (a) Give the classification of alkaloids with one example for each.
(b) Write notes on :
(i) Emde degradation
(ii) Hofmann degradation.
(c) Discuss the structure and synthesis of colchicine.

UNIT – III

5. (a) Write the synthesis of Diels hydrocarbox.
(b) Write the nomenclature of steroids.
(c) Explain the structural elucidation of Cholesterol.

Or

6. (a) Explain the types of RNA.
(b) Explain replication and translation.
(c) Discuss the nucleotides and structure of DNA.

[P.T.O.]

UNIT - IV

7. (a) Explain the biosynthesis of isoflavones.
(b) Explain the synthesis of Apigenin.
(c) Discuss the structure and synthesis of Quercetin.

Or

8. (a) Write the synthesis of kaempferol.
(b) Explain the biological importance of flavonoids and isoflavonoids.
(c) Discuss the biosynthetic pathways of flavonoids.
-

28/9/20

B-206-OC-04-03A

M.Sc. DEGREE EXAMINATION — SEPTEMBER 2020

FOURTH SEMESTER

Branch — Organic Chemistry

CHE OC-405 (a) — (Generic Elective): HETEROCYCLES AND NATURAL PRODUCTS

Time : 3 hours

Max. Marks : 80

SECTION - A

Answer any FOUR questions. Each question carries 5 marks.

(Marks : $4 \times 5 = 20$)

1. Compare the reactivity of pyrazole and imidazole and offer an explanation for the differences observed. ✓
2. Write the steps involved for Hantzsch-Widman nomenclature for bridged heterocycles. with suitable examples.
3. Compare the basicity of the following aza five and six membered cycles
 - (a) Pyrrolidine, Pyrazole and Imidazole,
 - (b) Piperidine, Pyridine, Pyridazine, Pyrimidine and Pyrazine.
4. Explain the [3, 3] sigmatropic shifts in the process of Fischer Indole synthesis.
5. Describe the basic skeleton of Diel's hydrocarbon and explain its nomenclature.
6. Explain the general occurrence of steroids.
7. Explain the nomenclature of various types of flavonoids and isoflavonoids. ✓
8. Write the biological importance of flavonoids. ✓

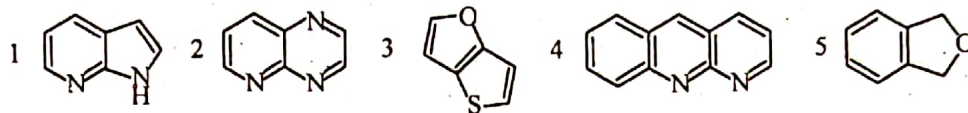
[P.T.O.]

SECTION - B

Answer ALL questions. Each question carries 15 marks.

(Marks : $4 \times 15 = 60$)

9. (a) (i) Naming the following fused heterocycles by Hantzsch-Widman nomenclature.

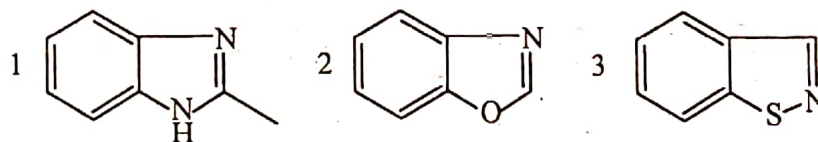


- (ii) Describe any three synthetic methods for preparation of oxazole.

Or

- (b) (i) Write any three synthetic methods for the preparation of Imidazole.
 (ii) Discuss the chemical reactions of isoxazole.

10. (a) (i) How you synthesize the following heterocycles and explain their mechanism?



- (ii) Explain the chemical reaction of pyrimidine.

Or

- (b) (i) Give three synthetic methods for the synthesis of 1, 2, 3 and 1, 2, 4- trizines.
 (ii) Describe the synthesis and chemical reactions of pyridazine.

11. (a) Write the total synthesis of Testosterone.

Or

- (b) Describe the structural determination of Cholesterol.

12. (a) Explain the detailed synthesis of Butein and Kaempferol molecules.

Or

- (b) (i) Write the biosynthesis of isoflavonoids b acetate pathway.
 (ii) Write the structure determination of Apigenin.

M.Sc. DEGREE EXAMINATION — MARCH/APRIL 2012

FOURTH SEMESTER

Branch III (A) — Chemistry — Organic Chemistry

Paper III — HETEROCYCLIC CHEMISTRY

(R.R. from 2007-2008)

(For supplementary Candidates i.e. who appeared April 2010 are earlier)

Time : 3 hours

Max. Marks : 80

Answer any FOUR of the following, choosing ONE from each Unit.

Sub-division (a), (b) and (c) carries, 4, 6 and 10 marks respectively.

UNIT – I

1. (a) Explain the systematic nomenclature of fused heterocycles. (4)
(b) Explain the synthesis and reactivity of aziridines. (6)
(c) Discuss the synthesis and reactions of oxiranes. (10)

Or

2. (a) Write the systematic nomenclature of Bridged heterocycles. (4)
(b) Write the synthesis of Azetidines. (6)
(c) Explain the synthesis and reactivity of oxetanes and thietanes. (10)

UNIT – II

3. (a) Write the synthesis of pyrazole. (4)
(b) Explain the synthesis and reactivity of imidazole. (6)
(c) Discuss the synthesis and reactivity of oxazole. (10)

Or

4. (a) Write the synthesis of thiiranes. (4)
(b) Explain the two synthetic methods and one reaction oxetanes. (6)
(c) Discuss the synthesis and reactivity of thietanes. (10)

UNIT – III

5. (a) Write the medicinal applications of Benzopyrroles. (4)
(b) Write two synthetic method and one reaction of Benzofuran. (6)
(c) Explain the synthesis and reactivity of Benzopyrroles. (10)

Or

6. (a) Write the medicinal applications of Benzimidazoles. (4)
(b) Write two methods of synthesis and one reaction of Benzimidazole. (6)
(c) Explain the synthesis and reactivity of Benzothiophenes. (10)

[P.T.O.]

UNIT — IV

7. (a) Write the synthesis of pyran. (4)
(b) Explain the two methods of synthesis and reactivity of Tetrahydropyridine. (6)
(c) Discuss the synthesis and reactivity of Thiopyran. (10)

Or

8. (a) Write the synthesis of Wiazines. (4)
(b) Write two methods of synthesis and one reactions of Triazines. (6)
(c) Discuss the synthesis and reactivity of Thiazines. (10)
-

THREE YEAR B.Sc.(CBCS) DEGREE EXAMINATION — NOVEMBER/DECEMBER 2020

FOURTH SEMESTER

Part II –Chemistry

Paper I — SPECTROSCOPY AND PHYSICAL CHEMISTRY

(w.e.f. 2016-2017)

Max. Marks : 75

Time : 3 hours

SECTION - A

సెక్షన్ - ఎ

Answer any FIVE questions.

ఏదైనా ఐదు ప్రశ్నలకు సమాధానములు వ్రాయుము.

(Marks : 5 × 5 = 25)

1. Write notes on Spectrophotometer. (5)

వర్ణపట మాపకము గురించి వ్రాయండి.మ

2. Write about Chromophore. (5)

వర్ణధారణి (క్రోమోఫార్) గురించి వ్రాయండి.

3. Explain infrared spectra of carbonyl compounds (aldehydes and ketones). (2½ + 2½)

కార్బోనైల్ సమ్మేళనాల పరారుణ వర్ణ పటాలను వివరించండి.

4. Write notes on chemical shift. (5)

రసాయన స్థానాంతరణము గురించి వ్రాయండి.

5. State and explain Raoult's law. (5)

రాల్ట్ నియమమును నిర్వహించి మరియు వివరించండి

6. Write about specific conductance and equivalent conductance. (2½ + 2½)

విశ్లవాహకత మరియు తుల్యాంక వాహకత గురించి వ్రాయండి.

[P.T.O.]

(5)

7. Write about calomel electrode.

కాలోమెల్ ఎలక్ట్రోడ్ గురించి వ్రాయండి.

(5)

8. Define phase and degrees of freedom.

ప్రావస్థ మరియు స్వాతంత్ర్య పరిమితులను నిర్వచించండి.

SECTION - B

సెక్షన్ - బి

Answer ALL questions.

అన్ని ప్రశ్నలకు సమాధానములు వ్రాయుము.

(Marks : $5 \times 10 = 50$)

(8 + 2 = 10)

9. (a) Derive Beer-Lambert's law and write its limitations.

బీర్ - లాంబర్ట్ వియనుమును ఉత్పాదించి మరియు దాని పరిమితులను వ్రాయండి.

Or

(b) Explain different types of electronic transitions.

(10)

వివిధ రకాల ఎలక్ట్రాన్ పరివర్తనాలను వివరించండి.

10. (a) Explain modes of fundamental vibrations of linear and non-linear molecules in IR with one example each. (5 + 5 = 10)

రేఖీయ అణువుకు మరియు రేఖీయం కాని అణువుకు స్వేచ్ఛా పరిమితుల సంఖ్య సూత్రము వ్రాసి ఒక్కొక్క ఉదాహరణతో వివరించండి.

Or

(b) Write notes on :

(5 + 5 = 10)

(i) Spin-Spin coupling.

(ii) Coupling constant.

క్రింది వాటిని వ్రాయండి.

(i) భ్రమణ - భ్రమణ యుగళత్వము

(ii) యుగళత్వ స్థిరాంకము.

11. (a) Define and explain elevation of boiling point and how the molecular weight of a non-volatile solute can be calculated from elevation of boiling point. (2 + 4 + 4 = 10)

భాష్పీభవన స్థాన నిమ్నతను నిర్వచించి మరియు ఒక అభాష్పశీల ద్రావితము అణుభారమును భాష్పీభవన స్థాన నిమ్నత ద్వారా ఏ విధముగా నిర్ణయిస్తారో వివరించండి.

Or

(b) Define osmotic pressure. How is it determined by using Berkley-Hartly method?

(3 + 7)

ద్రవాభిసరణ పీడనమనగా నేమి? బెర్క్లీ-హార్ట్లీ పద్ధతినుపయోగించి దాన్ని ఎలా కనుగొంటావు.

(5 + 5)

12. (a) Write the following :

(i) Kohlrausch's law.

(ii) Ostwald's dilution law.

క్రింది వాటిని వ్రాయండి.

(i) కోల్ రాష్ నియమం

(ii) ఆస్ట్ వాల్డ్ విలీన నియమం.

Or

(b) Define transport number. Explain their determination by Hittorf's method. (4 + 6)
అభిమన సంఖ్యను నిర్వచించి మరియు హిట్టర్ఫ్ పద్ధతి ద్వారా వాటిని ఎట్లు నిర్ణయించడరో వివరించండి.

(5 + 5 = 10)

13. (a) Explain reversible and irreversible cells.

ఉక్రమణీయ మరియు అనుక్రమణీయ ఘటాలను వివరించండి.

Or

(b) Define phase rule. Explain the phase diagram of NaCl-water system.

(3 + 7)

ప్రావస్త నియమమును నిర్వచించి, NaCl - నీరు ప్రావస్త వ్యవస్త పటం వివరించండి.

M.Sc. DEGREE EXAMINATION, APRIL/MAY - 2015

FOURTH SEMESTER

Branch - III : Chemistry

Spl : Organic Chemistry

PAPER - III : HETEROCYCLIC CHEMISTRY

(Revised syllabus w.e.f. 2010-11)

(Common to suppl. Can also i.e., who appeared in April 2010 Exam and earlier)

Time : 3 Hours

Max. Marks : 80

Answer any Four questions, choosing One question from each unit sub divisions a,b and c carries 4, 6 and 10 marks respectively.

UNIT - I

1. a) Explain Hantzsch - Widman system for bridged heterocycles.
b) Give reactions of Oxetanes and Thietanes.
c) Explain synthesis of Oxiranes and Thieranes.

OR

2. a) Explain synthesis of Oxetane.
b) Give an account on Nomenclature of Heterocyclic compounds with examples.
c) Give reactions of aziridines

UNIT - II

3. a) Explain synthesis of pyrazole.
b) Explain reactions of oxazole and Thiazole.
c) Give preparation methods and reactivity of Isoxazole.

OR

4. a) Explain synthesis of Isothiazole
b) Write chemical reactions of pyrazole
c) Give synthesis and reactions of Imidazole

UNIT - III

5. a) What are Benzofused five membered Heterocyclic compounds give examples.
b) Explain synthesis and medicinal applications of benzimidazoles.
c) Write synthesis and reactivity of Benzofuran.

OR

6. a) Explain the reactivity of Benzopyrrole
b) Explain synthetic methods of Benzopyrazole.
c) Write reactions and medicinal importance of Benzothiophenes.

UNIT - IV

7. a) Explain synthesis of pyran.
b) Explain important reactions of Thiazines.
c) Explain synthesis and important reactions of Tetrahydro pyridenes.

OR

8. a) Explain synthesis of thiopyran.
b) Write chemical reactions of diazines.
c) Explain synthesis and various reactions of Triazines.
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P.G. DEGREE EXAMINATION, MAY- 2017
FOURTH SEMESTER
HUMAN VALUES AND PROFESSIONAL ETHICS-II

(W.e.f. 2016 - 17)

(Common to all P.G Courses)

Time : 3 Hours

Max. Marks : 70/80

PART - A

Answer any **FIVE** questions. Each question carries 4 marks.

(5 × 4 = 20)

1. Value Education
2. Medical Ethics
3. Work Ethics
4. Business Ethics
5. Environmental Ethics
6. Energy and population
7. Social Ethics
8. Human Trafficking
9. Ethical Media
10. Impact of News papers and Television

PART - B

Answer **ALL** questions. Each question carries 10/12 marks. (5 × 10 = 50/5 × 12 = 60)

11. a) What is the status of women in family and society?

OR

- b) Explain the Family values.

12. a) Discuss the Medical Ethics.

OR

- b) Describe the code of Ethics for Medical and Health-care professionals.

13. a) Explain Ethical standards of Business.

OR

b) Evolute characteristics of Ethical problems in management.

14. a) Elucidate Environmental Ethics.

OR

b) Discuss Ecological crisis.

15. a) Describe Feminist Ethics.

OR

b) Explain Human Rights Violation and Social Disparities.



B-254-04-04A

M.Sc. DEGREE EXAMINATION — SEPTEMBER 2020

FOURTH SEMESTER

Environmental Science

Open Elective - I

Paper IV (A) : ENV-406 : FOREST RESOURCES AND MANAGEMENT

(Under CBCS w.e.f 2017-2018)

Time : 3 hours

Max. Marks : 80

PART – A

Answer any FOUR questions.

All question carry equal marks.

(Marks : $4 \times 5 = 20$)

1. Write the definition and concept of forest ecology.
2. Describe the biota of lotic communities.
3. Write short notes on grassland vegetation in India.
4. Write any five endemic species of Andhra Pradesh.
5. What is the role of an individual in conservation of forests?
6. Write about IUCN.
7. Write short notes on afforestation.
8. Write short notes on agroforestry.

PART – B

Answer ALL questions.

Each question carries 15 marks.

(Marks : $4 \times 15 = 60$)

9. (a) What is forest ecology? Write the structure and composition of plant community.
Or
(b) What is estuarine ecology? Discuss the environmental condition and biota of Indian estuaries.
10. (a) Describe the major plant communities of the world.
Or
(b) Give an account of floristic regions of India.

[P.T.O.]

11. (a) Explain the role of the MOEF in conservation of forests.

Or

- (b) Give an account of International Agency Frame work on environmental conservation.

12. (a) What are the threats for deforestation and explain the mitigation measures?

Or

- (b) Explain the various methods of conservation of forests.
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