

Date :13.02.2021 (M)

Reg. No

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PAPER CODE: CHE2330S

NMCY (2019-21 BATCH)



ANDHRA LOYOLA COLLEGE (AUTONOMOUS): VIJAYAWADA – 520 008

III - SEMESTER END EXAMINATIONS FEBRUARY – 2021

II M.Sc – CHEMISTRY (PAPER-III)

ORGANIC SPECTROSCOPY - I

Time: 2Hrs

Max Marks: 100M

Pass Mark: 40M

Answer ONE question from each unit. All questions carry equal marks

5X20=100M

Unit-I

1. a. Write a note on Types of Shifts and electronic transitions in UV.

OR

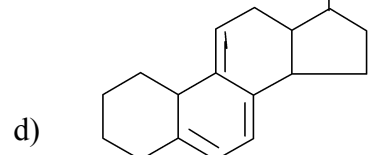
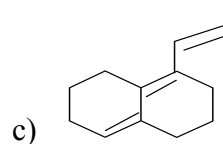
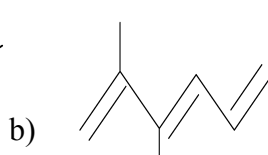
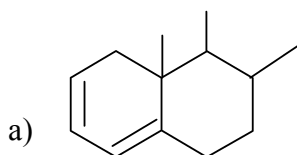
- b. Write the factors effecting $UV\lambda_{Max}$.

Unit-II

2. a. Write a note on Beer lamberts law and its Deviations.

OR

- b. Calculate the λ_{Max} of the following compounds.



Unit-III

3. a. Write a note on fundamental modes of vibrations.

OR

- b. Write the Factors effecting IR stretching frequency values of organic compounds.

Unit-IV

4. a. Write a note on NOE and FT NMR

OR

- b. Discuss the factors affecting the chemical shift.

Unit-V

5. a. Write a note on the following ion production techniques in mass spectrophotometry.

i. ES ii. FAB iii. MALDI iv. EI

OR

- b. Write a note on Different types of peaks, Mc Lafferty rearrangement and nitrogen rule.

Andhra Loyola College
Paper-III
Scheme of Valuation
Organic Spectroscopy-I

M.Sc Chemistry (Final)

Semester-III

Time : 3 hr

Date:

Maximum Marks : 100

Answer the following questions for 100 marks

Part-A

Unit-I

1. a) Write a note on types of shifts and transitions (Theory-10M, Theory-10M)
(OR)

b) Write the factors effecting λ_{Max} . (Theory-20M)

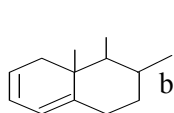
Unit-II

2. a) Beer lamberts law and Deviations (Theory-20M)

(OR)

b) Calculate the λ_{Max} of the following compounds. (Calculation-4x5M)

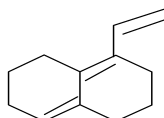
a



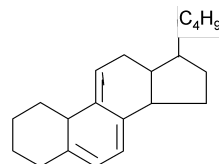
b



c



d



Unit-III

3. a) Write a note on fundamental modes of vibrations. (Theory-20M)
(OR)

b) Write the Factors effecting IR stretching frequency values of organic compounds. (Theory 20M)

Unit-IV

4. a) Write a note on NOE and FT NMR (Theory-10+10M)

(OR)

b) Discuss the factors affecting the chemical shift. (Theory-20M)

Unit-V

5. a) Write a note on the following ion production techniques in mass spectrophotometry.
(4x5+20M)

(OR)

b) Write a note on Types of Peaks, Mc Lafferty rearrangement and nitrogen rule. (6M+8M + 6M)

Date :11.02.2021 (M)

Reg. No

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PAPER CODE: CHE2310S

NMCY (2019-21 BATCH)



ANDHRA LOYOLA COLLEGE (AUTONOMOUS): VIJAYAWADA – 520 008

III - SEMESTER END EXAMINATIONS FEBRUARY – 2021

II M.Sc – CHEMISTRY (PAPER-I)

ORGANIC SYNTHESIS - I

Time: 2Hrs

Max Marks: 100M

Pass Mark: 40M

Answer ONE question from each unit. All questions carry equal marks

5X20=100M

UNIT – I

1. a. Explain enamine and related reactions.

OR

- b. Describe Benzoin condensation and Aldol reaction.

UNIT – II

2. a. Explain the formation of carbon – carbon single bonds by the addition of free radicals to alkenes.

OR

- b. Explain synthetic applications of carbenes and carbenoids.

UNIT – III

3. a. Discuss the sulfoxide – sulphonate rearrangement and decarboxylation of β -lactones.

OR

- b. Explain the Wittig reaction and Claisen rearrangement of allyl vinyl ethers.

UNIT-IV

4. a. Discuss the stereo selective synthesis of tri and tetra substituted alkenes and oxidative decarboxylation of carboxylic acids.

OR

- b. Explain stereo specific synthesis of carbon – carbon double bonds from 1,2 – diols and reductive dimerization of carbonyl compounds.

UNIT-V

5. a. Discuss in detail the Barton reaction and related process.

OR

- b. Explain Hoffmann – Loeffler – Freytag reaction and reactions of mono-hydric alcohols with lead tetraacetate.

SCHEME OF VALUATION

M.Sc - Chemistry

Title : Organic Synthesis - I

Time : 2 Hrs

Max Marks: 100 M

Answer the following Questions.

(5 X 20 = 100M)

UNIT – I

1. a.Explanation with suitable examples (20M).

(OR)

b.Explanation with suitable examples (10M+10M).

UNIT –II

2. a.Explanation with suitableexamples (20M).

(OR)

b.Explanation with suitable examples (20M).

UNIT – III

3. a.Explanation with suitable examples (10M+10M).

(OR)

b.Explanation with suitable examples (10M+10M).

UNIT-IV

4. a.Explanation with suitable examples (10M+10M).

(OR)

b.Explanation with suitable examples (10M+10M).

UNIT-V

5. a.Explanation with suitable examples (20M).

(OR)

b.Explanation with suitable examples (10M+10M).

Date :12.02.2021 (M)

Reg. No

PAPER CODE: CHE2320R

NMCY (2019-21 BATCH)



ANDHRA LOYOLA COLLEGE (AUTONOMOUS): VIJAYAWADA – 520 008

III - SEMESTER END EXAMINATIONS FEBRUARY – 2021

II M.Sc – CHEMISTRY (PAPER-II)

OXIDATIONS, REDUCTIONS & PROTECTING GROUPS

Time: 2Hrs

Max Marks: 100M

Pass Mark: 40M

Answer ONE question from each unit. All questions carry equal marks

5X20=100M

Unit-1

1. a. Explain the oxidation of alkenes and amines in detail.

OR

- b. Explain the oxidation of alcohols and ketones.

Unit-2

2. a. Write the synthetic importance of the following reagents.

I) MnO_2

II) Ag_2CO_3 III) SeO_2

OR

- b. Discuss the oxidation reactions of the following reagents.

i) RuO_4

ii) $\text{Ti}(\text{ONO}_2)_3$

iii) Lead Tetra Acetate

Unit-3

3. a. Write a note on heterogeneous and homogeneous catalytic hydrogenation with suitable examples.

OR

- b. Explain the following Reduction reactions with examples.

I) Birch Reduction

II) Clemmensen reduction

Unit-4

4. a. Write a note on the following Hydride transfer reagents.

I) LiAlH_4

II) NaBH_4

III) DIBAL

OR

- b. Discuss the reduction reactions of the reagents.

I) Diimide

II) Aluminium Alkoxide

III) NaBH_3CN

Unit-5

5. a. Write a note on protection and deprotection of the following functional groups.

I) Carbonyl group

II) Carboxylic acid group

OR

- b. Explain the protection and deprotection of carbon-carbon multiple bonds and hydroxyl group.

Andhra Loyola College
Paper-II
Oxidations, Reductions and Protecting groups

M.Sc Chemistry (Final)

Semester-IV

Time : 3 hr

Date:

Maximum Marks : 100

Answer the following questions for 100 marks

Part-A

Unit-1

1.a) Explanation with suitable examples. (10M + 10M)

(OR)

1. b) Explanation with suitable examples. (10M + 10M)

Unit-2

2.a) Explanation with suitable reactions. (7M +7M + 6M)

(OR)

2.b) Explanation with suitable reactions. (7M +7M + 6M)

Unit-3

3.a) Explanation with suitable reactions. (10M +10M)

(OR)

3.b)Explanation with suitable reactions. (10M +10M)

Unit-4

4.a)Explanation with suitable reactions. (7M +7M + 6M)

(OR)

4.b)Explanation with suitable reactions. (7M +7M + 6M)

Unit-5

5.a) Explanation with suitable reactions. (10M +10M)

(OR)

5.b) Explanation with suitable reactions. (10M +10M)

Date :16.02.2021 (M)

Reg. No

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PAPER CODE: CHE235PA

NMCY (2019-21 BATCH)



ANDHRA LOYOLA COLLEGE (AUTONOMOUS): VIJAYAWADA – 520 008

III - SEMESTER END EXAMINATIONS FEBRUARY – 2021

II M.Sc – CHEMISTRY (PAPER-V)

PHARMACEUTICAL ANALYSIS

Time: 2Hrs

Max Marks: 100M

Pass Mark: 40M

Answer ONE question from each unit. All questions carry equal marks

5X20=100M

Unit-I

1. a. Define Error explain in detail about classification of determinate and indeterminate errors in quantitative analysis

OR

- b. Write a note on Gaussian distribution curve, Explain t- Test and F- Test.

Unit-II

2. a. Explain principle and applications of conductometric titrations.

OR

- b. Explain in detail Glass electrode and Calomel electrode.

Unit-III

3. a. Explain primary and secondary standards with examples and Explain the role of solubility product and common ion effect in II & IV group cation analysis.

OR

- b. Write the principle, Theory, factors effecting and applications of gravimetric analysis

Unit-IV

4. a. Write the principle and theory of Precipitation titrations.

OR

- b. Write the principle and factors effecting diazotisation titrations and explain different methods available to detect the end point of diazotization titrations.

Unit-V

5. a. Explain the different types of complexometric titrations and Write the application of complexometric titrations in pharmaceutical analysis.

OR

- b. Explain the classification of non aqueous solvents and Write the applications of non aqueous titrations in Pharmaceutical analysis.

Andhra Loyola College
Paper-V
Scheme of valuation
Skill based Subject Elective-2
Pharmaceutical Analysis

M.Sc Chemistry (Final)
Date:

Semester-III

Time : 3 hr
Maximum Marks : 100

Answer the following questions for 100 marks

Unit-I

1. A. Define Error – 4M
classification of determinate and indeterminate errors in quantitative analysis (8M+8M).
(OR)
B. Write a note on Gaussian distribution curve – 10M
Explain t- Test and F- Test.(5M+5M)

Unit-II

2. A. Explain principle and applications of conductometric titrations (6M + 14 M).
(OR)
B. Explain in detail Glass electrode and Calomel electrode (10M+10M).

Unit-III

3. A. Explain primary and secondary standards with examples (5M+5M)

Explain the role of solubility product and common ion effect in II & IV group cation analysis (5M+5M).
(OR)
B. Write the principle, Theory, factors effecting and applications of gravimetric analysis (5+5+5+5M).

Unit-IV

4. A. Write the principle and theory of Precipitation titrations (10M+10M).
(OR)
B. Write the principle and factors effecting diazotisation titrations and explain different methods available to detect the end point of diazotization titrations (10M+10M).

Unit-V

5. A. Write the application of complexometric titrations in pharmaceutical analysis (20M).
(OR)
B. Write the applications of non aqueous titrations in Pharmaceutical analysis (20M)

Date :15.02.2021 (M)

Reg. No

PAPER CODE: CHE234IM

NMCY (2019-21 BATCH)



ANDHRA LOYOLA COLLEGE (AUTONOMOUS): VIJAYAWADA – 520 008

III - SEMESTER END EXAMINATIONS FEBRUARY – 2021

II M.Sc – CHEMISTRY (PAPER-IV)

INSTRUMENTAL METHOD OF ANALYSIS

Time: 2Hrs

Max Marks: 100M

Pass Mark: 40M

Answer ONE question from each unit. All questions carry equal marks

5X20=100M

Unit-I

1. a. i. Explain the Principle, Theory and Applications of Column Chromatography.
ii. Explain the Factors effecting the column efficiency.

OR

- b. What is Capillary electrophoresis? Give the details of the instrument and its applications.

Unit-II

2. a. Explain principle and instrumentation of Atomic Absorption Spectroscopy.

OR

- b. Explain in applications of AAS and AES for Drug, environmental samples.

Unit-III

3. a. Write a note on Ilkovic equation, limiting current and half wave potential.

OR

- b. What is Dropping mercury electrode, Explain the advantages and disadvantages of Dropping mercury electrode

Unit-IV

4. a. What is an amperometric titration? Explain its applications with principle and instrumentation.

OR

- b. Explain the principle, instrumentation and applications of coulometric analysis

Unit-V

5. a. Explain the theory and instrumentation of thermogravimetry.

OR

- b. Write the principle, instrumentation and applications of Differential scanning calorimetry.

Andhra Loyola College
Scheme of valuation
Skill based Subject Elective-1
Instrumental Methods of Analysis

M.Sc Chemistry (Final)

Semester-III

Time : 3 hr

Date:

Maximum Marks : 100

Answer the following questions for 100 marks

Unit-I

- 1.** A. i. Explain the Principle, Theory and Applications of Column Chromatography.
ii. Explain the Factors effecting the column efficiency (5M+ 5M+5M+5M).

(OR)

1. B. What is Capillary electrophoresis? Give the details of the instrument and its applications.
(Definition - 3M+Instrumentation -8 M+ Diagram-5M + Applications - 5M)

Unit-II

2. A. Explain principle and instrumentation of Atomic Absorption Spectroscopy.
(Principle - 6M + Instrumentation -8 M + Diagram – 6M).

(OR)

2. B. Explain in applications of AAS and AES fro Drug, environmental samples (10M+10M).

Unit-III

3. A. Write a note on Ilkovic equation, limiting current and half wave potential (6M+8M+6M)
(OR)

4. B. What is Dropping mercury electrode, Explain the advantages and disadvantages of Dropping mercury electrode(8M+6M+6M).

Unit-IV

- 5.** A. What is an amperometric titration? Explain the its applications with principle and instrumentation.

Definition – 4M+ instrumentation-8M+ Diagram-2M + applications- 6M)

(OR)

- 4B. Explain the principle, instrumentation and applications of coulometric analysis
(6M + 8M+6M).

Unit-V

5. A. Explain the theory and instrumentation of thermogravimetry.
(Theory-6M + instrumentation- 8M + diagram-6M).

(OR)

6. B. Write the principle, instrumentation and applications of Diffrential scanning calorimetry.
(Theory-6M + instrumentation- 8M + diagram-6M)