

(DCHE21)

ASSIGNMENT - 1

M.Sc. DEGREE EXAMINATION, MARCH, 2023.

Second Year

Chemistry

ANALYTICAL CHEMISTRY
MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

1. Write the principle and applications of photometric titration's.
2. State and explain the terms involved in Beer-Lambert's Law. Write its limitations.
3. Define Fluorescence and explain the factors influencing fluorescence.
4. Explain the important components of Atomic Absorption spectrophotometry and write its working principle.
5. Write the principle and applications of precipitation titrations giving examples.
6. Explain the construction and working of Dropping Mercury Electrode (DME).

(DCHE21)

ASSIGNMENT - 2

M.Sc. DEGREE EXAMINATION, MARCH, 2023.

Second Year

Chemistry

ANALYTICAL CHEMISTRY
MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

1. Write the principle of solvent extraction and the factors affecting solvent extraction.
 2. Write the preparation of Thin Layer Chromatographic Plate (TLC) and the principle of TLC.
 3. (a) Describe the basic instrumentation, principles and applications of Infra Red (IR) Spectroscopy.
(b) Describe the Theory, instrumentation and applications of Infra Red (IR) Spectroscopy for structure determination studies.
(a) Describe the theory, working principles and experimental procedure for Flame photometry.
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(b) Write the theory, principle and applications of phosphorimetry.
 4. (a) Write the principle, theory and applications of potentiometry giving examples.
(b) Describe the theory, instrumentation, working principle and applications of amperometric titration's.
 5. (a) Explain the action of Ion-exchangers. Write the analytical applications of Ion-exchangers.
(b) Describe the instrumentation, principle and applications of High performance liquid chromatography (HPLC).
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(DCHE22)

ASSIGNMENT - 1

M.Sc. DEGREE EXAMINATION, MARCH, 2023.

Second Year

Chemistry

INORGANIC CHEMISTRY
MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

1. Write about lanthanide contraction and its consequences.
2. Write the uses of lanthanides and actinide compounds.
3. Explain the nomenclature and assignment of transitions of electron absorption spectroscopy.
4. Explain Raman effect and the applications of Raman Spectroscopy.
5. How do you determine Magnetic susceptibility of substances using Guoy balance method?
6. Write the principles of Mass spectroscopy and the fragmentations taking place in Mass Spectroscopy with an example.

(DCHE22)

ASSIGNMENT – 2
M.Sc. DEGREE EXAMINATION ,MARCH, 2023.

Second Year

Chemistry

INORGANIC CHEMISTRY
MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

1. Explain the mechanism of photosynthesis.
 2. Write the applications of Metal Complexes in Medicine.
 3. (a) Write the chemical reactions of Lanthanides. How do you explain the magnetic properties of lanthanides.
(b) Write the synthesis of Trans Uranium elements.
 - (a) Write the Basic instrumentation, working principle and applications of Infra Red (IR) spectroscopy.
 - (b) Describe the basic instrumentation, principle and application X-ray diffraction method.
 4. (a) Describe the basic instrumentation, working principle and applications of NMR spectroscopy.
(b) Write the basic instrumentation, principle and applications of ESR spectroscopy.
 5. (a) Discuss the mechanism oxygen Transformation.
(b) Discuss the structure and functions of Myoglobin.
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(DCHE23)

ASSIGNMENT - 1

M.Sc. DEGREE EXAMINATION, MARCH, 2023.

Second Year

Chemistry

ORGANIC CHEMISTRY
MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

1. What are UV-visible electronic transitions? Write about the effect of solvent on electronic transitions.
2. Explain the vibrational frequencies of aldehydes and Ketones in Infra Red Spectroscopy.
3. Explain chemical Shift and Spin-Spin interactions in Nuclear Magnetic Resonance Spectroscopy (NMR).
4. Write about nuclear over Hauser effect.
5. Write the differences between photochemical and chemical reactions. Explain Quantum yield.
6. Write the symmetry properties of molecular orbitals.

(DCHE23)

ASSIGNMENT - 2

M.Sc. DEGREE EXAMINATION, MARCH, 2023.

Second Year

Chemistry

ORGANIC CHEMISTRY
MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

1. Write the synthesis of Menthol.
 2. Explain the mechanism of Benzil-Benzilic acid rearrangement.
 3. (a) Discuss Ultraviolet spectra and the bands of carbonyl compounds.
(b) Discuss the characteristics of vibrational frequencies of amides and acids.
 4. (a) Draw and interpretation of mass spectra of some common organic functional groups.
(b) Discuss the spin-spin interactions between Two and Three nuclei of first order spectra.
 - a) Discuss the photochemistry of olefins.
 - (b) Explain Norrish type I and II reactions with suitable examples.
 5. (a) Write the synthesis and structure of Nicotine.
(b) Write the mechanisms of Curtius and Schmidt rearrangements.
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(DCHE 24)

ASSIGNMENT - 1

MSc. DEGREE EXAMINATION, MARCH 2023.

Second Year

Chemistry

ENVIRONMENTAL CHEMISTRY

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. Write the principles of Weathering and explain the effect of Temperature on Weathering.
2. How do you determine moisture content in soil?
3. Write about the causes and effects of Acid rains.
4. Explain the atmospheric sources and emission of air pollutants.
5. Write about water sources and water quality parameters.
6. Explain the effects of water pollution due to industrial wastes.

(DCHE 24)

ASSIGNMENT - 2

MSc. DEGREE EXAMINATION, MARCH 2023.

Second Year

Chemistry

ENVIRONMENTAL CHEMISTRY

MAXIMUM : 30 MARKS

ANSWER LL QUESTIONS

1. How do you determine Dissolved Oxygen (DO) in water samples?
 2. Explain the principle and applications of Flash distillation.
 3. (a) Write about soil formation and development and explain the factors affecting soil development.
(b) How do you analyse Total nitrogen in soil samples?
 4. (a) Write the analysis of oxides of nitrogen in Air samples.
(b) Write the analysis of aromatic hydrocarbons in Air samples.
 5. (a) Discuss hydrological cycle in detail.
(b) Discuss the effect of water pollution due to Mercury and lead.
 6. (a) Write in detail about the primary and secondary water treatment methods.
(b) How do you determine nitrogen compounds in water samples.
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