

DR. B. R. AMBEDKAR OPEN UNIVERSITY – HYDERABAD.
Department of Chemistry
Assignments Question Paper – 2025-26
M.Sc (Chemistry), First Year - Semester - I
Course Code : MSc CHE 12301, Course – 1 : Inorganic Chemistry -1
[Max . Marks - 30
[Min. Marks - 12

Assignment- I
[3x5=15 Marks]

Instructions to the Candidate

- i) Answer All Questions
 - ii) Each Question carries 5 Marks
1. Write a note on Symmetry elements with examples.
 2. Explain Symmetry and Optical activity, Symmetry and Dipole moment.
 3. Splitting of d-orbital in Oh, Td, Square Planar geometry.

Assignment - II
[3x5=15 Marks]

Instructions to the Candidate

- i) Answer All Questions
 - ii) Each Question carries 5 Marks.
1. Write a note on HSAB theory with applications.
 2. Determination of stability constant by the spectrophotometry method.
 3. Explain about **18** electron rule with examples.

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Assignments Question Paper – 2025-26

M.Sc (Chemistry), First Year - Semester - I

Course Code : MSc CHE 12302, Course – 2 : Organic Chemistry - 1

[Max . Marks - 30

[Min. Marks - 12

Assignment- I

[3x5=15 Marks]

Instructions to the Candidate

- i) Answer All Questions
 - ii) Each Question carries 5 Marks
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- 1. Give the detailed classification of Stereoisomers. Define every term in the classification with a suitable example.
 - 2. Explain the following: Racemisation, Resolution, axial chirality, and Planar Chirality.
 - 3. Write about a) Mechanism of S_N^1 , S_N^2 , and S_N^i with suitable examples.
b) Explain the trapping experiments and crossover experimental methods of mechanism determination.

Assignment- II

[3x5=15 Marks]

Instructions to the Candidate

- i) Answer All Questions
 - ii) Each Question carries 5 Marks
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- 1. Explain Paterno-Buchi reaction, Norrish Cleavages and cis-trans isomerisation of Alkenes.
 - 2. Write the 3 synthetic reaction and 3 chemical properties of Indole, Iso quinoline and Carbazole.
 - 3. Explain the structure elucidation of β -Carotene and papaverine

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Assignments Question Paper – 2025-26

M.Sc (Chemistry), First Year - Semester - I

Course Code : MSc CHE 12303, Course – 3 : Physical Chemistry - 1

[Max . Marks - 30

[Min. Marks - 12

Assignment- I

[3x5=15 Marks]

Instructions to the Candidate

- i) Answer All Questions
 - ii) Each Question carries 5 Marks
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1. Write Schrodinger equation derivation and explain operator concept in quantum chemistry.
 2. Explain the following Postulates of Quantum mechanics and Orthonormal set of Eigen functions.
 3. Write about a) Joule-Thomson effect and Joule-Thomson coefficient.
b) Explain about Carnot's theorem. .

Assignment- II

[3x5=15 Marks]

Instructions to the Candidate

- i) Answer All Questions
 - ii) Each Question carries 5 Marks
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1. Explain the concept of liquid junction potential and the factors that influence it.
 2. Explain the concept of overvoltage. Describe cyclic voltammetry and how it differs from polarography?
 3. Explain Lindemann's theory of unimolecular reactions, and explain consecutive reactions.

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Assignments Question Paper – 2025-26

M.Sc (Chemistry), First Year - Semester - I

Course Code : MSc CHE 12304, Course – 4 : Mathematics , Biology and Spectroscopy - 1

[Max . Marks - 30

[Min. Marks - 12

Assignment- I

[3x5=15 Marks]

Instructions to the Candidate

- i) Answer All Questions
 - ii) Each Question carries 5 Marks
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1. Define Spherical Polar Coordinates. Derive the relations between spherical polar and Cartesian coordinates. **(Mathematics to Biology stream)**

Compare prokaryotic and eukaryotic cells. Elucidate the events of glycolysis and TCA Cycle. **(Biology for Mathematics Stream)**
 2. Explain The Following Rotational Energy Levels, fundamental bands, overtones and hot bands.
 3. Describe the application of infrared spectroscopy.

Assignment- II

[3x5=15 Marks]

Instructions to the Candidate

- i) Answer All Questions
 - ii) Each Question carries 5 Marks
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1. Explain IR and Raman spectra-mutual exclusion principle and Types of electronic transitions in molecules.
 2. Give the applications of Woodward - Fieser rules. And explain basic principle of NMR spectroscopy
 3. Explain factors affecting chemical shift and principle of spin-spin coupling.