

B.Sc. Semester - 1 (NEP-2020) Examination

OCT/NOV-2025

CHE: Introductory Chemistry (Multidisciplinary Course)

Time: 2:00 Hours

Marks:50

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Que.1 Answer the following questions: (10)

- 1) Explain: Four Quantum numbers.
- 2) Write and explain Aufbau principle and Hund's rule of maximum multiplicity.

OR

Que.1 Answer the following questions:

- 1) Explain energy level diagram of O_2 molecule and calculate its bond order.
- 2) Discuss sp^3 and sp^3d hybridization with example.

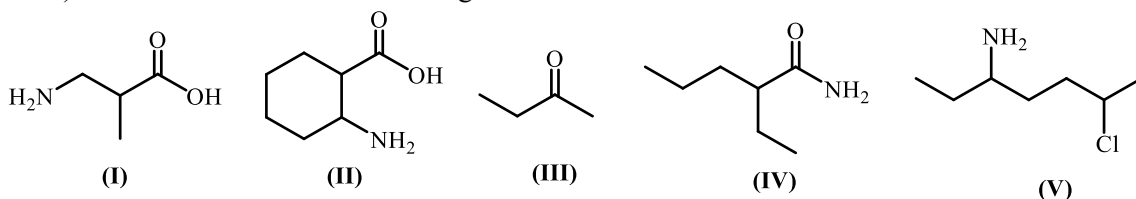
Que.2 Answer the following questions: (10)

- 1) Give the types of organic reactions with one example each.
- 2) Give the difference between enantiomers & diastereomers with examples.

OR

Que.2 Answer the following questions:

- 1) Give IUPAC name of following molecules:



- 2) Explain Wurtz reaction and Wurtz-Fittig reaction for the formation of alkane.

Que.3 Answer the following questions: (10)

- 1) Give the classification of colloids with example in short.
- 2) How to prepare (i) 1000mL 0.1N NaOH & (ii) 1000mL 1N Na_2CO_3 solutions.

OR

Que.3 Answer the following questions:

- 1) Explain: primary & secondary batteries.
- 2) Explain: Types of adsorption.

Que.4 Answer the following questions: (10)

- 1) Give any three postulates of VSEPR theory.
- 2) Define the terms: (i) Chirality, (ii) Stereoisomers, (iii) Nucleophiles, (iv) Electrophiles, (v) Constitutional isomers

OR

Que.4 Answer the following questions:

- 1) Explain: Resonance & Inductive effect.
- 2) Explain: Heisenberg's uncertainty principle.

Que.5 Answer the following questions: (10)

- 1) Explain: (i) Tyndall effect (ii) Brownian movement.
- 2) Give the difference between SN^1 & SN^2 mechanism with examples.

OR

Que.5 Answer the following questions:

- 1) What is Catalyst? Discuss Homogeneous and Heterogeneous catalysis with examples.
- 2) Write a note on Carbanion in detail.
