

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

OCT/NOV-2024

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)

- (a) Explain: Four Quantum numbers.
- (b) Explain: Energy level diagrams of B_2 & calculation of bond order and magnetic moment.

OR

Que-1 Answer the following questions.

- (a) Explain: Valence Bond Theory of methane (CH_4) with hybridization, shape & bond angle.
- (b) Explain in detail: Aufbau's rule.

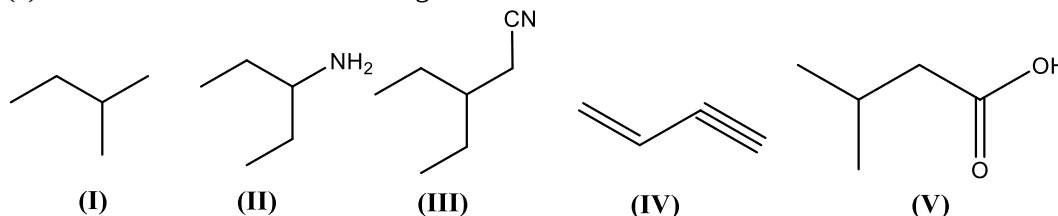
Que-2 Answer the following questions. (10)

- (a) Give the types of organic reactions with one example each.
- (b) Give the difference between enantiomers & diastereomers with examples.

OR

Que-2 Answer the following questions.

- (a) Give IUPAC name of following molecules:



- (b) Give the difference between SN^1 & SN^2 mechanism with examples.

Que-3 Answer the following questions. (10)

- (a) Give the importance & applications of colloids.
- (b) How to prepare (i) 1000mL 1N NaOH & (ii) 1000mL 1N Na_2CO_3 solutions.

OR

Que-3 Answer the following questions.

- (a) Explain: Tyndall effect & Brownian movement.
- (b) Explain: Types of adsorption.

Que-4 Answer the following questions. (10)

- (a) Give any three postulates of VSEPR theory.
- (b) Define the terms:
 - (i) Chirality,
 - (ii) Stereoisomers,
 - (iii) Conformers,
 - (iv) Homomers,
 - (v) Constitutional isomers

OR

Que-4 Answer the following questions.

- (a) Explain: Resonance & Inductive effect.
- (b) Explain: Heisenberg's uncertainty principle.

Que-5 Answer the following questions. (10)

- (a) Explain: primary & secondary batteries.
- (b) Explain Wurtz reaction and Wurtz-Fittig reaction for the formation of alkane.

OR

Que-5 Answer the following questions.

- (a) Give the preparation of colloidal by chemical method.
- (b) Explain: the characteristics of primary & secondary standards for preparation of solutions.
