

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

OCT/NOV-2024

CHE: Introductory Chemistry (Minor)

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. (5 marks each) (10)

- (1) Discuss Heisenberg's uncertainty principle.
- (2) Draw the energy level diagram of N_2 molecule and calculate its bond order and magnetic momentum.

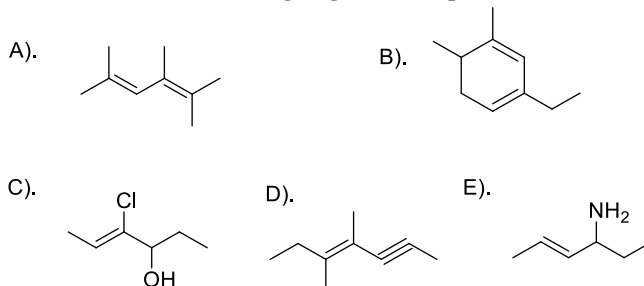
OR

Que-1 Answer the following questions. (5 marks each)

- (1) Discuss angular and spin quantum numbers in detail.
- (2) What is Hybridization? Explain sp^3 Hybridization with appropriate examples.

Que-2 Answer the following questions. (5 marks each) (10)

- (1) Write the IUPAC names of following organic compounds;

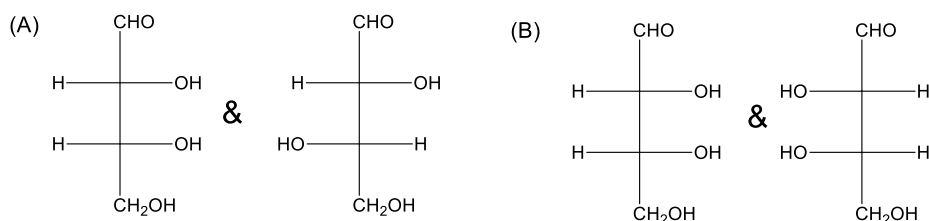


- (2) State the difference between Unimolecular and Bimolecular nucleophilic substitution reactions.

OR

Que-2 Answer the following questions. (5 marks each)

- (1) What is Hyperconjugation? Explain with appropriate examples.
- (2) Identify the relationship between following two pairs of molecules and justify reason for the relation between them.

**Que-3 Answer the following questions. (5 marks each) (10)**

- (1) Explain primary and secondary standards with suitable examples of each.
- (2) Describe Tyndall effect and Brownian movement in detail.

OR

Que-3 Answer the following questions. (5 marks each)

- (1) Write a note on all four types of catalysts.
- (2) Derive Freundlich equation and give its limitations.

Que-4 Answer the following questions. (5 marks each)

(10)

- (1) Write geometry and shape of following molecules: CH_4 , NH_3 , SF_6 , SnCl_2 and PBr_5 .
- (2) Differentiate Configurational and Conformational isomerism.

OR

Que-4 Answer the following questions. (5 marks each)

- (1) What is chemical bond? Explain its types with examples in detail.
- (2) Discuss Wurtz and Wurtz fittig reaction for alkane synthesis.

Que-5 Answer the following questions. (5 marks each)

(10)

- (1) Write a note on various applications of Colloids.
- (2) Discuss structure, stability order and preparation of Carbanion.

OR

Que-5 Answer the following questions. (5 marks each)

- (1) Define structure of carbocation and discuss stability of 1° , 2° and 3° carbocations.
- (2) Give the difference between Chemisorption and Physisorption.
