

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

OCT/NOV-2024

CHE: Introductory Chemistry -2 (Major-2)

Time: 2:00 Hours

Marks: 50

Instructions:

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

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- Que-1** (A) Answer the following question.
- (1) Give any two differences between sigma bond and pi bond. (02)
 - (2) Explain sp hybridization with example. (03)
- (B) Answer the following question. (05)
- (1) Draw Molecular orbital Diagram of N₂ and calculate bond order and magnetic property.
- OR
- Que-1** (A) Answer the following question.
- (1) Calculate total electron pair, bonding electron pair and lone pair in XeF₂ molecule. (02)
 - (2) Explain sp² hybridization with example. (03)
- (B) Answer the following question. (05)
- (1) Draw Molecular orbital Diagram of O₂ and calculate bond order and magnetic property.
- Que-2** (A) Answer the following question.
- (1) Draw the structure of product and write its name when Ethyl chloride is treated with sodium metal in anhydrous ether (as solvent). (02)
 - (2) Give any three differences between Enantiomers and Diastereomers. (03)
- (B) Answer the following question. (05)
- (1) Discuss SN¹ reaction mechanism with suitable example.
- OR
- Que-2** (A) Answer the following question.
- 1) Write only reaction of Wurtz-Fittig reaction with name of starting material and product. (02)
 - 2) Give any three differences between configurational and conformational isomer. (03)
- (B) Answer the following question. (05)
- 1) Discuss SN² reaction mechanism with suitable example.
- Que-3** (A) Answer the following question.
- 1) Explain Tyndall effect. (02)
 - 2) State the classification of colloid based on types of particles of dispersed phase. (03)
- (B) Answer the following question. (05)
- 1) Explain the properties of gel.
- OR
- Que-3** (A) Answer the following question.
- 1) Define dispersed phase and dispersion medium. (02)
 - 2) State any three properties of colloids. (03)
- (B) Answer the following question. (05)
- 1) Difference between lyophilic and lyophobic colloids.

- Que-4 (A) Answer the following question.**
- 1) Calculate total electron pair, bonding electron pair and lone pair in ClF_3 molecule. (02)
 - 2) Differentiate: BMO and ABMO (03)
- OR
- (B) Answer the following question. (05)**
- 1) Explain nitration and halogenation reaction of alkane.
- Que-4 (A) Answer the following question.**
- 1) Define: Homomers and Chirality. (02)
 - 2) Draw Fisher projection formula of erythrose and convert it into Sawhorse and Newmann. (03)
- (B) Answer the following question. (05)**
- 1) Compare valence bond theory and molecular orbital theory.
- Que-5 (A) Answer the following question.**
- 1) Write any two preparation methods of alkyl halide. (02)
 - 2) Define: Constitutional isomer, Stereoisomers, and Geometrical isomers. (03)
- (B) Answer the following question. (05)**
- 1) Discuss the electrical properties of colloids.
- OR
- Que-5 (A) Answer the following question.**
- 1) State any two differences between elastic and non-elastic gel. (02)
 - 2) Explain Gold number. (03)
- (B) Answer the following question. (05)**
- 1) Discuss relative reactivity and selectivity of halogenation of alkane.
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