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SUBJECT CODE NO: BNP-2641
FACULTY OF SCIENCE AND TECHNOLOGY
B.Sc. (NEP) (P-2024) F.Y Sem I
Examination November / December 2025
Chemistry Fundamentals of Chemistry- I

[Time: 1 Hours]**[Max. Marks: 30]**

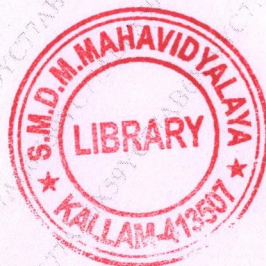
Please check whether you have got the right question paper.

N. B

1. Question No. 1 is multiple choice objective type and it is compulsory. It carries 10 marks.
2. Attempt any four questions from Q.2 to Q.7. Each of these questions carries 5 marks.
3. Figures to the right indicate full marks.

Part A**Q1 Attempt all MCQs****10**

1. The Heisenberg uncertainty principle is significant only for _____
 a) Macroscopic objects b) Atomic and subatomic particles
 c) Stationary bodies d) Bodies moving with high velocities
2. Hyperconjugation is also known as _____
 a) Mesomerism b) No-bond resonance
 c) Inductive effect d) Electromeric effect
3. Which of the following is not a state function?
 a) Internal energy (U) b) Enthalpy (H)
 c) Heat (q) d) Entropy (S)
4. In general, which nitrene state is more stable?
 a) Singlet nitrene b) Triplet nitrene
 c) Both equally stable d) Neither
5. The magnetic quantum number represents _____
 a) Shape of orbital b) Size of orbital
 c) Orientation of orbital d) Spin of electron

**Part B**

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| Q2 Explain Pauli's Exclusion Principle with suitable examples. | 05 |
| Q3 Discuss the reactivity and applications of nitrenes in organic reactions. | 05 |
| Q4 Explain the concept of absolute entropy. | 05 |
| Q5 Discuss the order of stability of primary, secondary and tertiary carbocations with reasons. | 05 |
| Q6 State Hund's rule of maximum multiplicity. Explain its importance in electronic configuration. | 05 |
| Q7 Derive Kirchhoff's equation for the temperature dependence of reaction enthalpy. | 05 |