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SUBJECT CODE NO: BNP-2642
FACULTY OF SCIENCE AND TECHNOLOGY
B.Sc. (NEP) (P-2024) F.Y Sem II
Examination November / December 2025
Chemistry Fundamentals of Chemistry- II

[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.
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 bond order of O_2 molecule is _____
 a) 1 b) 2 c) 2.5 d) 3
2. Which orbital overlap leads to formation of a sigma bond?
 a) p-p (sidewise) b) s-s (head on)
 c) d-d (sidewise) d) p-d (sidewise)
3. The basic principle of UV spectroscopy is _____
 a) Absorption of infrared radiation
 b) Absorption of ultraviolet light causing electronic transition
 c) Emission of x-rays
 d) Emission of microwaves
4. The geometry of NH_3 molecule according to VSEPR theory is _____
 a) Linear b) Trigonal planar c) Tetrahedral d) Octahedral
5. Which of the following can show optical isomerism?
 a) CH_4 b) CH_3Cl c) $CHBrClF$ d) C_2H_6

Part B

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| Q2 Explain the difference between sigma and pi bonds. | 05 |
| Q3 Define stereoisomerism with example. | 05 |
| Q4 Write a short note on transition state theory of chemical kinetics. | 05 |
| Q5 What are racemic mixtures? Give one example. | 05 |
| Q6 Define hybridization. What is the hybridization of carbon in CH_4 ? | 05 |
| Q7 Explain Beer-Lambert's law. | 05 |