Reg No:..... K25FY2311
Name :.....

Second Semester FYUGP Chemistry Examination
APRIL 2025 (2024 Admission onwards)
KU2DSCCHE101 (FUNDAMENTALS OF CHEMISTRY - II)
(DATE OF EXAM: 28-4-2025)

Time : 90 min Maximum Marks : 50

Part A (Answer any 6 questions. Each carries 2 marks)

1. Which is stronger? sigma bond or pi bond? 2

2. What are protic and aprotic solvents ? Give examples. Is anhydrous HF a protic or an aprotic solvent ? 2

3. Define unit cell and space lattice 2

4. What are stoichiometric and nonstoichiometric defects commonly found in crystals? 2

5. What is meant by a non stoichiometric defect?Give one example. 2

6. Define electromeric effect with an example. 2

7. Give the order of stability for methyl carbanion, ethyl carbanion , isopropyl carbanion with reason. 2

8. How does the allyl cation get stabilised? 2

Part B (Answer any 4 questions. Each carries 6 marks)

9. a) What is a chemical bond? Discuss with examples of ionic and covalent bonds. b) Discuss the factors that affect the formation of ionic compounds. 6

10. What are proton sponges? Give example. 6

11. Distinguish between crystalline and amorphous solids and why do crystalline solids have sharp melting point 6

12. Why does table salt, NaCl, sometimes appear yellow in colour? 6

13. Explain +M and -M effect with suitable examples. 6

14. a)Compare the basic strength of ammonia, methylamine, dimethyl amine and trimethyl amine. b)Explain why aniline is a weaker base than ammonia and cyclohexylamine? 6

Part C (Answer any 1 question(s). Each carries 14 marks)

15. (a) What is meant by coordination number? Discuss the geometries adopted by complexes with coordination numbers varying from 2 to 6. 7

(b) Explain Arrhenius Theory,and Lowry Brosted Theory of Acids and Bases with suitable examples. Illustrate the neutralization reactions based on these theories. 7

16. (a) Explain the concept of lattice energy and derive the Born-Lande equation, highlighting the importance of the Madelung constant. 7

(b) Draw the molecular orbital diagram of NO and HCl. Calculate the bond orders. 7