



Notes : 1. All questions are compulsory and carry equal marks.

1. a) Explain aromaticity in benzenoid and non-benzenoid compounds with example. 8
- b) Explain : 8
- 1) Phase transfer catalysis
- 2) Conjugation and cross conjugation in organic molecule.

OR

- c) Explain crown ether complexes. 4
- d) Describe in short inclusion compounds. 4
- e) Explain synthetic application of enamines in organic synthesis. 4
- f) Explain in short antiaromaticity with example. 4
2. a) Explain Cahn-Ingold-Prelog system to describe configuration at chiral centers. 8
- b) Explain structure, stability of classical and non-classical carbocations. 8

OR

- c) Explain optical activity in biphenyl. 4
- d) Describe conformational analysis in monosubstituted cyclohexanes. 4
- e) Explain the following 4
- 1) Elements of symmetry.
- 2) Asymmetrical synthesis.
- f) Explain generation and stability of carbenes. 4
3. a) Explain the Hamett equation and linear free energy relationship in a organic molecule. 8
- b) Explain neighboring group participation by π and σ bonds with example. 8

OR

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| c) | Explain Hammond's postulates. | 4 |
| d) | Explain Kinetic and thermodynamic control. | 4 |
| e) | Explain classical and non classical carbocations. | 4 |
| f) | Explain intermolecular displacement involving oxygen atom. | 4 |
| 4. | a) Describe SN2 reaction with its mechanism. What is the effect of leaving group on SN2 reaction. | 8 |
| | b) Explain the following | 8 |
| | 1) Gattermann-Koch reaction | |
| | 2) Smiles rearrangement reaction | |

OR

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| c) | Discuss Von-Richter reaction. | 4 |
| d) | Explain Vilsmeier reaction. | 4 |
| e) | Discuss in brief nucleophilicity. | 4 |
| f) | Explain Diazonium coupling reaction. | 4 |
| 5. | a) Explain Huckel's rule of aromaticity. | 2 |
| | b) Draw the structure of crown ether-18. | 2 |
| | c) Define threo and erythro isomers. | 2 |
| | d) Explain singlet oxygen. | 2 |
| | e) Write Hammett principle. | 2 |
| | f) Explain anisotropic assistance with example. | 2 |
| | g) Explain Pechmann reaction (Reaction only) | 2 |
| | h) Explain Sommelet-Hauser rearrangement reaction. | 2 |
