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| **University of Kerala** | | |
| Discipline: Polymer Chemistry |  | Time: 1 Hour 30 Minutes (90 Mins.) |
| Course Code: **UK1DSCPOC102** |  | Total Marks: 42 |
| Course Title: **Introductory** **Organic Chemistry-I** |  |  |
| Type of Course: **DSC** |  |  |
| Semester: 1 |  |  |
| Academic Level: 100-199 |  |  |
| Total Credit: 4, Theory: 3 Credit  (Applicable for 4 Credit Course with 1 Credit Practical Also) |  |  |

Part A. 6 Marks. Time: 6 Minutes

Objective Type. 1 Mark Each. Answer All Questions

(Cognitive Level: Remember/Understand)

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| **Qn.**  **No.** | **Question** | **Cognitive**  **Level** | **Course**  **Outcome (CO)** |
| 1. | How many lone pairs of electrons does the nitrogen atom of amines have? | Remember | CO-1 |
| 2. | Define resonance | Remember | CO-2 |
| 3. | Write one example for aromatic heterocyclic compound | Understand | CO-4 |
| 4 | What are hybrid orbitals? | Understand | CO-2 |
| 5. | Identify the smallest alkane which can form a ring structure (cycloalkane)? | Understand | CO-3 |
| 6. | The percentage p-character in sp3 hybridization is | Understand | CO-1 |

Part B. 8 Marks. Time: 24 Minutes

Short Answer. 2 Marks Each. Answer All Questions

(Cognitive Level: Understand/Apply)

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| **Qn.**  **No.** | **Question** | **Cognitive**  **Level** | **Course**  **Outcome (CO)** |
| 7. | What are non-benzenoid aromatic compounds? Give one example | Understand | CO-2 |
| 8. | What are the main differences between sigma and pi bonds | Understand | CO-1 |
| 9. | Name the following compounds systematically CH3CH2COOCH2CH3, CH3CH2CH2CN | Apply | CO-3 |
| 10. | Write a note on resonance of the nitro group | Apply | CO-4 |

Part C. 28 Marks. Time: 60 Minutes

Long Answer. 7 marks each. Answer all 4 Questions, choosing among options within each question.

(Cognitive Level: Apply/Analyse)

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| **Qn.**  **No.** | **Question** | **Cognitive**  **Level** | **Course**  **Outcome (CO)** |
| 11. | Discuss following a. Alicyclic compounds b. Ring Compounds c. Aromatic Compounds    OR | Apply | CO-1 |
| Illustrate different structural representation models in organic chemistry | Apply | CO-1 |
| 12. | a. i. Discuss Huckel’s rule of aromaticity (4 marks)  ii. Write any two methods for the synthesis of alkene (3 marks) | Apply | CO-4 |
| OR  b. Determine the aromaticity of the following compounds  1. Cyclopentadienyl cation 2. Tropylium cation (4 marks)  2. Discuss Wurtz reaction with example (3 mark) | Apply | CO-4 |
| 13. | Discuss about IUPAC naming of organic compounds with different functional groups  OR | Apply | CO-3 |
| a. Write IUPAC name of the following compounds  1. FCH2CH2COOH, 2. CH3CH=CHCH2CH=CH2, 3. HOOCCH2CH2CH2CN 4.ClCH2CH2NHCH3 | Apply | CO-3 |
| 14. | Analyze sp3, sp2 and sp hybridization in organic compounds | Analyze | CO-2 |
| OR  Analyze the influence of hybridization on bond properties and shape of alkane, alkene and alkyne | Analyze | CO-2 |

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| **Cognitive Level** | **Marks** | **Percentage** |  | **Course Outcomes** | **Marks** | **Percentage** |
| Remember | 2 | 4.8 |  | CO-1 | 11 | 26.19 |
| Understand | 8 | 19.0 |  | CO-2 | 11 | 26.19 |
| Apply | 25 | 59.5 |  | CO-3 | 10 | 23.8 |
| Analyse | 7 | 16.7 |  | CO-4 | 10 | 23.8 |
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| **TOTAL** | **42** | **100** |  | **TOTAL** | **42** | **100** |