QP Code: U25C061

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

ST MARY'S COLLEGE (AUTONOMOUS), THRISSUR-20

III SEMESTER (FYUGP) DEGREE EXAMINATIONS, OCTOBER 2025
B. Sc. Chemistry
CHE3CJ202 : ORGANIC CHEMISTRY I
2024 Admission Onwards
(Credits: 4)

Time: 2 Hours **Maximum Marks: 70**

Section A

*Answer **all**. Each question carries **3** Marks.* ***(Ceiling: 24 Marks)***

1. State Huckel’s rule of aromaticity.
2. What is homolytic fission? Give an example.
3. Explain tautomerism with an example.
4. Represent the curved arrow formalism in the resonance structure of acetate ion.
5. Distinguish between singlet and triplet carbene.
6. Explain why the equatorial conformation of methylcyclohexane is more stable than the axial conformation.
7. Draw the Newman projection formulas of Tartaric acid and explain how these projections represent the spatial arrangement of its substituents.
8. Compare the principles of simple and fractional distillation. Analyze why one gives better separation than the other.
9. Which purification method would you choose to separate naphthalene from a mixture of sand and justify your answer?
10. Apply chromatography to test the purity of a given dye sample. Discuss basic principles of chromatography.

Section B

*Answer **all**. Each question carries **6** Marks.* ***(Ceiling: 36 Marks)***

11. Compare the bonding and hybridization in ethylene and acetylene.
12. Briefly explain localized and delocalized bonding in organic compounds.
13. Write a short note on steric effect.
14. Sketch the resonance structures of phenol and nitrobenzene.

Turn Over

15. Illustrate [4+2] cyclo addition reaction with an example.
16. Explain the difference between conformational and configurational isomers.
17. Describe Thin Layer Chromatography, its procedure and applications.
18. Explain the difference between cis-trans, syn-anti, and E-Z notations with example.

Section C

*Answer **any one**. Each question carries **10** Marks* ***(1x10=10marks)***

19. Explain the structure, formation and stability of free radicals and carbanions.
20. Analyze the different conformations of cyclohexane and identify the most stable one. Justify your answer with a potential energy diagram.

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