24U385 (Pages: 2) Name : .....

Reg. No : .....

THIRD SEMESTER UG DEGREE EXAMINATION, NOVEMBER 2025

(FYUGP)

CC24UCHE3MN201 - BASIC ORGANIC CHEMISTRY

(Chemistry - Minor Course)

(2024 Admission - Regular)

Time: 2.0 Hours Maximum: 70 Marks

Credit: 4

Part A (Short answer questions)

Answer ***all*** questions. Each question carries 3 marks.

1. Which is more acidic, trichloroacetic acid or acetic acid? Give a reason. [Level:2] [CO1]
2. Define mesomeric effect. State two characteristics of the mesomeric effect with suitable examples. [Level:2] [CO1]
3. Define hyperconjugation. State two characteristics of hyperconjugation with suitable examples. [Level:2] [CO1]
4. Differentiate between homolytic and heterolytic bond cleavage with one example each. [Level:2] [CO1]
5. Explain the preparation of alkyl halides from alkanes by free radical halogenation with an example. [Level:2] [CO2]
6. Differentiate between the reactivity of primary and tertiary alcohols in substitution reactions. [Level:2] [CO2]
7. What is absolute alcohol? Explain how it is prepared from rectified spirit. [Level:2] [CO2]
8. Explain the preparation of aniline by Hofmann's bromamide reaction. [Level:2] [CO3]
9. Explain how benzene diazonium chloride is prepared from aniline. [Level:2] [CO3]
10. Describe the term enantiomers with suitable examples. [Level:2] [CO4]

(Ceiling: 24 Marks)

Part B (Paragraph questions/Problem)

Answer ***all*** questions. Each question carries 6 marks.

11. Explain the formation of carbocations, carbanions, and free radicals with suitable examples. [Level:2] [CO1]

12. Discuss how steric hindrance can alter the rate of esterification reactions. Explain with example. [Level:2] [CO1]

13. Explain +E effect with one example. [Level:2] [CO1]

14. Explain how electron withdrawing and electron donating groups affect the acidity of phenols with examples. [Level:2] [CO2]

15. Explain the preparation of carboxylic acids from Grignard reagents with equations. Give two examples. [Level:2] [CO3]

16. Describe the addition of HCN and sodium bisulphite ($NaHSO_3$) reactions to aldehydes and ketones. [Level:2] [CO3]

17. Explain in details about enantiomers and diastereoisomers. [Level:2] [CO4]

18. Explain the conformation of methylcyclohexane, highlighting axial and equatorial positions. [Level:2] [CO4]

(Ceiling: 36 Marks)

Part C (Essay questions)

Answer any ***one*** question. The question carries 10 marks.

19. Briefly describe addition, elimination, substitution, rearrangement, and redox reactions in organic chemistry. Give one example for each. [Level:2] [CO1]

20. Explain the distinguishing methods for cis and trans isomers with suitable examples. [Level:2] [CO4]

(1 × 10 = 10 Marks)

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