

21U314S

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Name: .....

Reg. No: .....

**THIRD SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2022**

(CUCBCSS-UG)

**CC15U CHE3 C03 - ORGANIC CHEMISTRY**

(Chemistry - Complementary Course)

(2015 to 2018 Admissions – Supplementary/Improvement)

Time: Three Hours

Maximum: 64 Marks

**Section A** (One word)

Answer *all* questions. Each question carries 1 mark

1. The electrophile in Friedel-Craft's acylation is -----
2. Name two groups which show -I effect.
3. The most stable conformation of ethane is the ----- conformation.
4. Stereoisomers that are not mirror images of each other are called -----
5. Cycloheptatrienyl cation is also known as ----- ion.
6. 95.6% solution of ethanol is called -----
7. When 1<sup>o</sup> amide is heated with bromine and alkali, the product is a ----- amine.
8. The pH at which the amino acid zwitter ion has no net charge is known as its -----
9. Cellulose is a polymer of -----
10. Draw the structure of coniine.

**(10 × 1 = 10 Marks)**

**Section B** (Short answer)

Answer any *seven* questions. Each question carries 2 marks

11. What are crown ethers? Give an example.
12. Which is more acidic-Phenol or para nitro phenol? Justify.
13. What is meant by Friedal-Craft alkylation reaction?
14. How does benzene undergo sulphonation and what is the product obtained?
15. Write one method of preparation of phenol from chlorobenzene.
16. What is meant by resolution of a racemic mixture?
17. What is meant by mutarotation?
18. State and explain Huckel's rule of aromaticity.
19. What are carbocations? Give an example.
20. State and explain isoprene rule.

**(7 × 2 = 14 Marks)**

### Section C (Paragraph)

Answer any *four* questions. Each question carries 5 marks

21. What are ortho-para directors and meta directors? Give an example each for an ortho-para directing group and a meta directing group.
22. Explain the Lucas test to distinguish between primary, secondary and tertiary alcohols
23. Discuss comparatively the basicity of ammonia, methyl amine and aniline.
24. Explain the double helical structure of DNA.
25. Distinguish between the terms enantiomers and diastereomers.
26. Explain the structure and the physiological effects of nicotine.

**(4 × 5 = 20 Marks)**

### Section D (Essay)

Answer any *two* questions. Each question carries 10 marks

27. Discuss and illustrate the significance of the various electron displacement effects in organic molecules.
28. Discuss the S<sub>N</sub>1 and S<sub>N</sub>2 mechanisms of aliphatic nucleophilic substitution reaction.
29. (a) Explain one method for the preparation of benzene diazonium chloride.  
(b) Explain any four synthetic applications of benzene diazonium chloride.
30. Discuss primary, secondary and tertiary structure of proteins.

**(2 × 10 = 20 Marks)**

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