

22U315S

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Reg. No.: .....

Name: .....

**THIRD SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2023**

(CUCBCSS-UG)

**CC15U CHE3 C03 - ORGANIC CHEMISTRY**

(Chemistry - Complementary Course)

(2015 to 2018 Admissions – Supplementary)

Time: Three Hours.

Maximum: 64 Marks

**Section A**

Answer *all* questions. Each question carries 1 mark.

1. The  $\alpha$  and  $\beta$  forms of glucose are called -----
2. Boiling an aqueous solution of benzene diazonium chloride yields -----
3. Sodium propanoate upon heating with dry soda lime yields -----
4. Acetaldehyde cyanohydrin on hydrolysis with mineral acid yields -----
5. Maleic acid and fumaric acid are ----- isomers
6.  $\text{NO}_2$  group has ----- directing influence in aromatic electrophilic substitution.
7. 95.6 % solution of ethanol is called -----
8. A mixture of  $\text{Con HCl}$  and anhydrous  $\text{ZnCl}_2$  is known as ----- reagent.
9. The electrophile in Friedel craft's acylation is -----
10. The chief source of nicotine is -----

**(10 × 1 = 10 Marks)**

**Section B (Short Answer)**

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

11. What is TNT? How is it prepared?
12. What are carbocations? Compare the stability of alkyl carbocations. Justify your answer.
13. State and explain isoprene rule.
14. What are diastereomers?
15. Which is more basic- methyl amine or ammonia? Why?
16. Which is more acidic- phenol or para nitro phenol? Justify.
17. Illustrate Kolbe electrolysis.
18. Draw the structure of coniine.
19. What are deactivating groups? Give two examples.
20. State and explain Huckel's  $(4n+2)$  rule of aromaticity.

**(7 × 2 = 14 Marks)**

### Section C

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

21. Give an example for Friedal-crafts alkylation and give its mechanism.
22. Explain (a) Structure of natural rubber (b) Vulcanization and its advantages.
23. What are essential oils? How are they isolated from their natural sources?
24. Explain the Lucas test to distinguish between  $1^{\circ}$ ,  $2^{\circ}$  and  $3^{\circ}$  alcohols.
25. Highlight the structure of DNA.
26. Discuss the optical isomerism in tartaric acid.

**(4 × 5 = 20 Marks)**

### Section D

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

27. What is meant by resolution of a racemic mixture? Explain various method used for the resolution of a racemic mixture.
28. Discuss the primary, secondary and tertiary structure of proteins.
29. Discuss and illustrate the significance of the various electron displacement effects in organic molecules
30. Write short notes on:
  - a) Haloform reaction
  - b) Hofmann's carbylamine reaction
  - c) Wurtz reaction.
  - d) Wurtz-Fittig reactions.

**(2 × 10 = 20 Marks)**

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