

D 91729

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Name.....

Reg. No.....



**THIRD SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION  
NOVEMBER 2020**

Chemistry

**CHE 3C 03—ORGANIC CHEMISTRY**

Time : Three Hours

Maximum : 64 Marks

**Section A (One Word)**

*Answer all the questions.*

*Each question carries 1 mark.*

1. The isomerism exhibited by alkanes is \_\_\_\_\_.
2. The hybridization of carbon atoms in ethyne is \_\_\_\_\_.
3.  $\text{CH}_3$  group exhibits \_\_\_\_\_ inductive effect.
4. The number of possible conformations of ethane is \_\_\_\_\_.
5. The reagents used for nitration of benzene are \_\_\_\_\_.
6. The product of Wurtz reaction of bromoethane is \_\_\_\_\_.
7. The reagent used for iodoform test is \_\_\_\_\_.
8. Lucas reagent is \_\_\_\_\_.
9. Urotropine is prepared from \_\_\_\_\_.
10. IUPAC name of picric acid is \_\_\_\_\_.

(10 × 1 = 10 marks)

**Section B (Short Answer)**

*Answer any seven questions.*

*Each question carries 2 marks.*

11. What is Hyperconjugation ?
12. Draw Newman projection formula of eclipsed and staggered conformations of ethane.
13. What is racemic mixture ?
14. Write Huckels rule.

**Turn over**

15. Write two examples of non benzenoid aromatic compounds.
16. What is Denatured spirit ?
17. How will you prepare anisole by Williamsons synthesis.
18. Suggest a method to convert propanoic acid to 2-Bromopropanoic acid.
19. Aniline is less basic than ammonia Why ?
20. Write two examples of essential amino acids.

(7 × 2 = 14 marks)

### Section C (Paragraph)

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

21. Explain Saponification ? How is it important industrially.
22. Write four differences between DNA and RNA.
23. What is Mutarotation ?
24. Write any *five* reactions of Benzene diazonium chloride with equations.
25. How will you convert ethanol to propanoic acid ?
26. Explain nucleophilic addition reactions with any *four* examples.

(4 × 5 = 20 marks)

### Section D (Essay)

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

27. Explain the formation, stability and reactions of carbocations, carbanions and free radicals
28. Write an essay on a) optical isomerism of lactic acid and tartaric acid.
29. Explain the reaction and mechanism of any four electrophilic aromatic substitution.
30. Explain the effect of substrate structure and stereochemistry of  $S_N1$  and  $S_N2$  reactions.

(2 × 10 = 20 marks)



17. What is the isoprene rule?
18. What is the tollens reagent?
19. What is the Zwitterion?
20. What are the crown ethers?

**(7•2=14 marks)**

**Section C(Paragraph )**

*Answer any four questions.*

*Each questions carries 5 marks.*

21. What is hyperconjugation? Explain its significance. How does it influence stability of of cations?
22. Draw different conformations of cyclohexane .Which is more stable? Why?
23. Explain mechanism of nitration and bromination of benzene.
24. What happens when methyl chloride is treated with metallic sodium. Name the reaction.
25. Give an account of addition reactions of aldehyde and ketone.
26. Write note on extraction of alkaloids.

**(4 5=20 marks)**

**Section D (Essay)**

*Answer any two questions.*

*Each questions carries 10 marks.*

27. What is optical activity? Discuss optical isomerism of tartaric acid.
28. Give a detailed account of the group already present in aryl ring in directing incoming group in an electrophilic substitution reaction.
29. Give the preparation and synthetic applications of benzene diazonium Chloride.
30. Discuss following : (a) Hofmanns bromamide reaction; (b) mutarotation;  
(c) Geometrical isomerism in but -2-ene; (D) Haloform test ; and  
(e) Preparation and use of phenolphthalein.

**(2 10=20 marks)**