

D 11821

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Name.....

Reg. No.....

**THIRD SEMESTER (CUCBCSS-UG) DEGREE EXAMINATION  
NOVEMBER 2021**

Chemistry

CHE 3C 03—ORGANIC CHEMISTRY

(2014—2018 Admissions)

Time : Three Hours

Maximum : 64 Marks

**Section A***Answer all the questions.**Each question carries 1 mark (one word).*

1. Homolytic bond fission in a reaction leads to the formation of \_\_\_\_\_.
2. The hybridization of carbon atoms in benzene is \_\_\_\_\_.
3. Halogens exhibits \_\_\_\_\_ inductive effect.
4. Which carbocation is more stable ? primary/ secondary/ tertiary
5. The preferred conformation of methyl cyclohexane is \_\_\_\_\_.
6. The reagent and substrate used in Wurtz reaction are \_\_\_\_\_.
7. Number of pi electrons of naphthalene is \_\_\_\_\_.
8. Alkyl magnesium halides are known as \_\_\_\_\_.
9. TNT is used as \_\_\_\_\_.
10. The nitrogenous base that is not present in DNA is \_\_\_\_\_.

(10 × 1 = 10 marks)

**Section B***Answer any seven questions.**Each question carries 2 marks. (short answer).*

11. State isoprene rule.
12. Draw the structure of nicotine.
13. What is vulcanization ?
14. Why oils are hydrogenated ?

**Turn over**

15. Write *two* differences of amylose and amylopectin.
16. Draw the structure of methyl orange.
17. What is Williamsons synthesis ?
18. How Toluene is converted to TNT ?
19. Kb value increases in the order Methylamiine, Dimethylamine, Triethylamine Why ?
20. Write *two* examples of neutral amino acids.

(7 × 2 = 14 marks)

### Section C

Answer any **four** questions.

Each question carries 5 marks (paragraph)

21. How soap is prepared ?
22. Write the preparation and uses of phenophthalein.
23. Write *three* evidences for cyclic structure of glucose.
24. Write any *three* synthetic applications of Grignard reagents.
25. How will you convert ethanol to propanoic acid ?
26. Distinguish between S<sub>N</sub>1 and S<sub>N</sub>2 reactions.

(4 × 5 = 20 marks)

### Section D

Answer any **two** questions.

Each question carries 10 marks. (Essay).

27. Explain the primary, secondary and tertiary structure of proteins.
28. Write an essay on conformations of ethane and cyclohexane.
29. Explain the structure of benzene and aromaticity.
30. Explain the preparation of ethanol from molasses.

(2 × 10 = 20 marks)

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## THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION, NOVEMBER 2021

Chemistry/Industrial Chemistry/Polymer Chemistry

CHE 3C 03—ORGANIC CHEMISTRY

(2019—2020 Admissions)

Time : Two Hours

Maximum : 60 Marks

**Section A (Short Answers)***Answer at least **eight** questions.**Each question carries 3 marks.**All questions can be attended.**Overall Ceiling 24.*

1. What are free radicals ? How are they formed ?
2. Which is more acidic, acetic acid or chloroacetic acid ? Why ?
3. What are enantiomers ?
4. Write the possible conformations of ethane. Which is more stable ?
5. What is Wurtz reaction ?
6. How will you prepare phenol from chlorobenzene ?
7. Which is more basic, ammonia or methyl amine ? Why ?
8. What are zwitter ions ? Give examples.
9. What are enzymes ? Give examples.
10. What do you mean by 1° structure of a protein ?
11. What is isoprene rule ?
12. Write the structure of citral and menthol.

(8 × 3 = 24 marks)

**Section B (Short Answers)***Answer at least **five** questions.**Each question carries 5 marks.**All questions can be attended.**Overall Ceiling 25.*

13. What is inductive effect ? What are its characteristics ?
14. What are geometrical isomers ? How are they distinguished ?

**Turn over**

15. State Huckel's rule. Apply Huckel's rule to predict the aromaticity of benzene and naphthalene.
16. How will you prepare 1°, 2° and 3° alcohols using Grignard reagent ?
17. Explain Lucas test for distinguishing 1°, 2° and 3° alcohols.
18. What is Hofmann's Bromamide reaction ?
19. Explain the difference between DNA and RNA.

(5 × 5 = 25 marks)

### Section C (Essay)

*Answer any **one** question.*

*The question carries 11 marks.*

20. How benzene diazonium chloride is prepared ? Discuss the synthetic applications of benzene diazonium chloride.
21. Discuss the mechanism of the following aromatic electrophilic substitutions  
Halogenation  
Nitration  
Sulphonation  
Friedel Craft's alkylation.

(1 × 11 = 11 marks)

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**THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION  
NOVEMBER 2023**

Chemistry/Industrial Chemistry/Polymer Chemistry

CHE 3C 03—ORGANIC CHEMISTRY

(2019—2022 Admissions)

Time : Two Hours

Maximum : 60 Marks

**Section A (Short Answers)***Answer questions up to 20 marks.**Each question carries 2 marks.*

1. What are elimination reactions ? Give one example.
2. Draw the stable geometrical isomer of but-2-ene-1,4-dioic acid and explain the reason for its stability.
3. State and explain Huckel's rule with an example.
4. What are Enantiomers ? Depict the enantiomers of lactic acid.
5. How is propanoic acid prepared from Grignard reagent ?
6. What are free radicals and how are they formed ?
7. Compare the basicity of ammonia and methylamine.
8. What is iodoform test ? Give an example of a compound giving iodoform test.
9. Write on the harmful effects of ethanol on human body.
10. Explain vulcanisation and its advantages.
11. Write any *two* uses of citral and sandalwood oil.
12. What are Monosaccharides ? Give an example.

(Ceiling of marks : 20)

**Turn over**

**Section B (Paragraph)**

*Answer questions up to 30 marks.*

*Each question carries 5 marks.*

13. Describe the mechanism and stereochemistry of  $S_N2$  reaction.
14. Briefly explain Luca's test for the distinction of alcohols.
15. What is Electromeric effect ? Give an example each for reactions involving + E effect and – E effect.
16. Explain Friedel-Craft's alkylation reaction with mechanism.
17. Write a short note on the conformations of cyclohexane.
18. Explain for the following :
  - (a) Chloroacetic acid is stronger than acetic acid ; and
  - (b) 2-butene is more stable than 1-butene.
19. What are Carbocations ? Discuss the structure and stability of carbocations.

(Ceiling of marks : 30)

**Section C (Essay)**

*Answer any **one** question.*

*The question carries 10 marks.*

20. Discuss in detail the preparation and applications of benzene diazonium chloride.
21. Briefly explain the structure of proteins.

(1 × 10 = 10 marks)