

(6 pages)

Reg. No. : _____

Code No. : 20325 E Sub. Code : AMCH 63

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2023

Sixth Semester

Chemistry — Core

ORGANIC CHEMISTRY — IV

(For those who joined in July 2020 only)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL the questions.

Choose the correct answer.

- Cellulose is a
 - Hetero polymer
 - Homo polymer
 - Dimer
 - Monomer
- Which is an example of sigmatropic rearrangement?
 - Claisen rearrangement
 - Diels-Alder reaction
 - Benzidine rearrangement
 - Hofmann rearrangement
- Which of the following is the common functional group in an alkaloid structure?
 - amine
 - carboxyl acid
 - amide
 - ketone
- Camphor is
 - monocyclic
 - bicyclic
 - tricyclic
 - tetracyclic
- In an infrared spectrum, which of the following functional groups has the highest frequency?
 - ketone
 - alcohol
 - aldehyde
 - ester
- The number of signals obtained in NMR spectra of acetone is
 - 3
 - 6
 - 2
 - 1

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- Polysaccharide is formed by the combination of
 - A Monosaccharide
 - Disaccharaide
 - Many Monosaccharide
 - None
- Formylation of phenol with CHCl_3 and NaOH is an example of
 - Reimer-Temmann reaction
 - Gattermann-Koch reaction
 - Benzidine reaction
 - Friedel-Crafts reaction
- Nitrophenols are _____ than phenols.
 - more basic
 - less acidic
 - less basic
 - more acidic
- Which intermediate carbocation is more stable in pinacole-pinacolen rearrangement?
 - 1°
 - 2°
 - 3°
 - 4°

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PART B — (5 × 5 = 25 marks)

Answer ALL the questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

- Discuss the mutarotation.

Or

 - Explain the structure and reactions of sucrose.
- Discuss the mechanism of Kolbe's reaction.

Or

 - Explain the mechanism of Gattermann reaction.
- Discuss the mechanism of Wager-Meerwein rearrangement.

Or

 - Explain the mechanism of Schmidt rearrangement.
- Discuss Hofmann exhaustive methylation with suitable example.

Or

 - Explain the structural elucidation of limonene.

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[P.T.O.]

15. (a) Explain the hyperchromic shift and hypochromic shift.

Or

(b) Write notes on chemical shift.

PART C — (5 × 8 = 40 marks)

Answer ALL the questions choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain the following conversions

(i) Glucose \longrightarrow Fructose

(ii) Fructose \longrightarrow Glucose

Or

(b) Discuss the properties, uses and structure of cellulose.

17. (a) Explain the mechanism of Cannizzaro reactions.

Or

(b) Outline the preparation of

(i) Mandelic acid

(ii) Anthranilic acid

(iii) Benzene 1, 2 dicarboxylic acid

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18. (a) Describe the mechanism of Pinacol-Pinacolone rearrangement.

Or

(b) Explain the following rearrangements

(i) Curtius rearrangement

(ii) Beckmann rearrangement

(iii) Hofmann rearrangement

19. (a) Describe the structural elucidation of piperine.

Or

(b) Discuss the structure of α -Terpineol.

20. (a) Describe the application of IR spectroscopy.

Or

(b) How many types of NMR signals are to be expected on the spectrum of the following compounds.

(i) ISO butene

(ii) 1-chloropropane

(iii) Benzaldehyde

(iv) Ethyl methyl ketone

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