

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2022.

Fourth Semester

Chemistry — Core

ORGANIC CHEMISTRY — II

(For those who joined in July 2020 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- Prop-2-en-1-ol is commonly known
(a) Succinaldehyde (b) Acrolein
(c) Crotonaldehyde (d) Cinnamic acid
- The reducing agent used in MPV reduction is
(a) Sodium ethoxide
(b) Hydrazine
(c) Aluminium isopropoxide
(d) (a) and (b)

- Electrolysis of potassium succinate gives
(a) $\text{CH}_2 = \text{CH}_2$ (b) CO_2
(c) H_2 (d) All the above
- The hybridization of carboxyl carbon is
(a) sp (b) sp^2
(c) sp^3 (d) sp^3d
- What is Frankland reagent?
(a) Mustard gas (b) Sulphonal
(c) Dialkyl Zinc (d) None
- Which of the following will give a secondary alcohol?
(a) HCOOH (b) CH_3COCH_3
(c) HCHO (d) CH_3CHO
- Which among the following is not an active methylene compound?
(a) Ethyl malonate
(b) Ethyl propionate
(c) Ethyl acetoacetate
(d) None

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- 4-methyl uracil is formed by the reaction of acetoacetic ester with

- (a) pyridine (b) pyrimine
(c) urea (d) succinic acid

- The least stable cycloalkane is
(a) Cyclopropane (b) Cyclobutane
(c) Cyclopentane (d) Cyclohexane

- The angle strain in cyclobutane is
(a) $+24^\circ 44'$ (b) $-9^\circ 44'$
(c) $+9^\circ 44'$ (d) $-24^\circ 44'$

PART B — (5 × 5 = 25 marks)

Answer ALL questions choosing either (a) or (b).
Each answer should not exceed 250 words.

- (a) Write a note on the structure and reactivity of carbonyl group.

Or

- (b) Explain Reformatsky reaction with the mechanism.

- (a) Discuss the structure of carboxylic acid.

Or

- (b) Explain Hell-Volhard-Zelinsky reaction with mechanism.

- (a) Give any three synthetic applications of methyl lithium with equations.

Or

- (b) Write a note on mustard gas.

- (a) Explain the synthesis of mono and di carboxylic acids from ethyl acetoacetate.

Or

- (b) Discuss the mechanism of nitro-acinitro tautomerism.

- (a) Write a note on Sachse-Mohr theory.

Or

- (b) Explain Coulson and Moffitt's concept.

PART C — (5 × 8 = 40 marks)

Answer ALL questions choosing either (a) or (b).
Each answer should not exceed 600 words.

16. (a) Explain with mechanism of nucleophilic addition reactions of carbonyl compounds with
- HCN
 - NaHSO₃
 - CH₃MgBr.

Or

- (b) Give the preparation, properties and uses of chloral.
17. (a) Explain the chemical properties of oxalic acid.

Or

- (b) Discuss the mechanism of esterification in detail.
18. (a) Explain the preparation and properties of thio alcohols.

Or

- (b) Write a note on :
- tetra ethyl lead
 - sulphonol
 - sulphones.

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19. (a) Write a note on amido-imidol tautomerism.

Or

- (b) Discuss the synthetic uses of diethyl malonate.

20. (a) Discuss the synthesis and structure of muscone.

Or

- (b) Explain Baeyer's strain theory and its limitations.
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