Reg. No. : ....

Name : ....

IV Semester B.Sc. Degree (C.B.C.S.S. – O.B.E. – Regular/Supplementary/ Improvement) Examination, April 2024
(2019 to 2022 Admissions)
CORE COURSE IN CHEMISTRY/POLYMER CHEMISTRY
4B06 CHE /PCH : Organic Chemistry – II
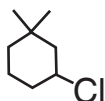
Time : 3 Hours

Max. Marks : 40

SECTION – A

(Very short answer type – **Each** carries **1** mark. Answer **all 4** questions.)
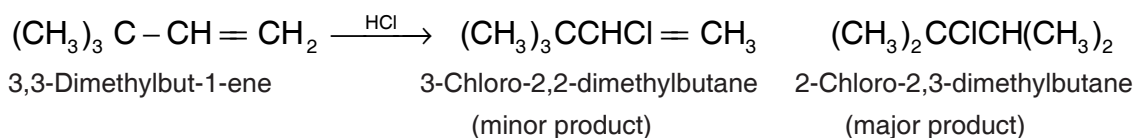
1. What is Hofmann's Rule ?

2. Write the IUPAC name of

3. Write about Lucas method.

4. What is Etard's reaction ?

(4×1=4)

SECTION – B

(Short answer type – **Each** carries **2** marks. Answer **7** questions out of 10.)

5. Write notes on E1CB reaction.

6. How are alkenes prepared by dehalogenation of dihalides ?

7. The addition of HCl to 3,3-dimethylbut-1-ene leads to the formation of an unexpected product, 2-chloro-2,3-dimethylbutane, in somewhat greater yield than 3-chloro-2,2-dimethylbutane, the expected Markownikoff product.
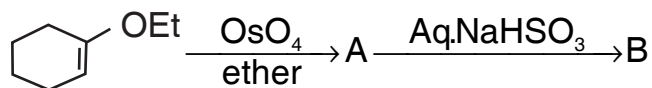
$$(CH_3)_3\,C - CH = CH_2 \xrightarrow{HCl} (CH_3)_3CCHCl = CH_3 \qquad (CH_3)_2CClCH(CH_3)_2$$

3,3-Dimethylbut-1-ene   3-Chloro-2,2-dimethylbutane   2-Chloro-2,3-dimethylbutane

(minor product)   (major product)

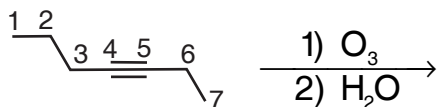Explain this observation.

P.T.O.

8. Identify the product obtained in each step of the following reaction sequences

9. Predict the product of the following reaction.

10. What is $S_N Ar$ mechanism ?

11. How will you distinguish between acetaldehyde and acetone ?

12. Write notes on Knoevenagel condensation.

13. What is Wittig reaction ?

14. What is the reaction of Oxidation of aldehydes by Selenium dioxide ?   **(7×2=14)**
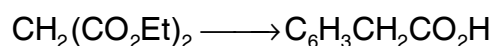
SECTION – C

(Short essay/problem type – **Each** carries **3** marks. Answer **4** questions out of 6.)

15. Write down the propagation steps that take place when HBr adds to 1-methylcyclohexene in the presence of an organic peroxide.

16. Predict the most likely mechanism and the product from the reaction between 2-chloro-2-methylpentane and sodium ethoxide in ethanol.

17. Give any three methods of preparation of cycloalkanes.

18. How would you carry out the following transformation ? Give the mechanism.

$$CH_2(CO_2Et)_2 \longrightarrow C_6H_3CH_2CO_2H$$

19. Write the following reactions :

a) Gattermann-Koch reaction

b) Riemer-Tiemann reaction.

20. What is called Oppenauer oxidation ? Discuss its mechanism with a suitable example.   **(4×3=12)**

SECTION – D

(Long essay type – **Each** carries **5** marks. Answer **2** questions out of 4.)

21. Discuss the factors influencing S_N1 and S_N2 mechanism.

22. i) Ozonolysis of alkyne

    ii) What is hydroboration-oxidation of an alkyne ?
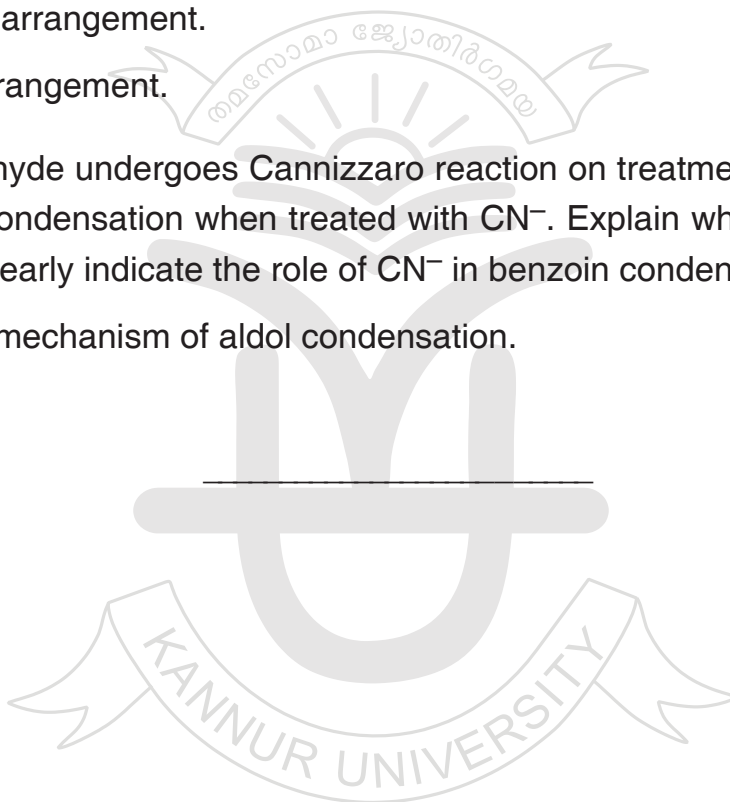
23. a) Claisen rearrangement.

    b) Fries rearrangement.

24. a) Benzaldehyde undergoes Cannizzaro reaction on treatment with OH^-, but benzoin condensation when treated with CN^-. Explain why this difference occurs. Clearly indicate the role of CN^- in benzoin condensation.

    b) Write the mechanism of aldol condensation.   **(2×5=10)**

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Reg. No. : ....

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**IV Semester B.Sc. Degree (CBCSS – Supplementary)
Examination, April 2023
(2017 and 2018 Admissions)
CORE COURSE IN CHEMISTRY
4B06CHE : Organic Chemistry – II**

Time : 3 Hours   Max. Marks : 40

SECTION – A

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

1. What is meant by specific rotation ?

2. Give the structure of five and six membered heterocycles.

3. Draw the ring structures of fructose.

4. Define chirality.   **(4×1=4)**

SECTION – B

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

5. Explain mutarotation taking glucose as an example.

6. Explain Huckel's rule of aromaticity.

7. Give the mechanism of sulphonation of benzene.

8. Give two uses of Buna-N.

9. How do you convert fructose into glucose ?

10. Explain the ant aromaticity with a suitable example.

11. Write a note on biodegradable polymers.

12. Compare the basicity of pyridine and pyrrole.

13. Give any two industrial applications of cellulose.

14. State the rules for assigning E and Z configuration. **(7×2=14)**

SECTION – C

Answer **any 4** questions. **Each** question carries **3** marks.

15. How is quinoline synthesized by skraupes method ?

16. Discuss the conformational isomerism of cyclohexane.

17. How will you prepare

    a) Pyrrole from acetylene

    b) Thiophene from n-butane

    c) Pyridine from nicotinic acid.

18. Explain three methods of resolution.

19. Explain condensation and addition polymerization with suitable examples.

20. Explain the benzyne mechanism. **(4×3=12)**

SECTION – D

Answer **any 2** questions. **Each** question carries **5** marks.

21. a) What is optical activity ? Which type of molecules exhibit this property ? **2**

    b) Discuss the optical isomerism of biphenyls ? **3**

22. Discuss the orientation and reactivity in mono substituted benzene rings.

23. Explain the significance and chemistry behind the following tests with examples

    a) Tollen's test

    b) Fehling's test

    c) Bendict's test.

24. Outline the synthesis, reactions and structure of indole. **(2×5=10)**

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IV Semester B.Sc. Degree (CBCSS – OBE – Regular/ Supplementary/ Improvement) Examination, April 2023
(2019 Admission Onwards)
CORE COURSE IN CHEMISTRY/ POLYMER CHEMISTRY
4 B06 CHE/PCH : Organic Chemistry – II

Time : 3 Hours   Max. Marks : 40

Instruction :   *Answer the questions in* **English** *only.*

SECTION – A

Very short answer type – **Each** carries **1** mark – Answer **all 4** questions.

1. Name the product obtained when pent-1-ene adds HBr in the presence of benzoyl peroxide.

2. Lindlar's catalyst is _____

3. Benzaldehyde and benzophenone can be distinguished by _____ test.

4. Borsche's reagent is _____   **(4×1=4)**

SECTION – B

Short answer type – **Each** carries **2** marks. Answer **any 7** questions out of 10.

5. In SN_1 reaction racemisation occurs while in SN_2 reaction, it is Walden inversion. Why ?

6. What is Saytzeff rule ? Explain with suitable example.

7. How will you synthesize propene from propyl alcohol ?

8. Write the product in the following reaction

   a) H_3C—CH=CH—CH_3 $\xrightarrow{KMnO_4}$?

   b) H_3C—CH=CH—CH_3 $\xrightarrow[\text{2. } H_2O, Zn]{\text{1. } O_3}$?
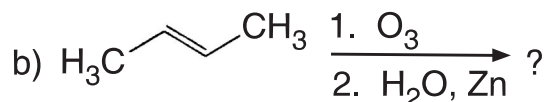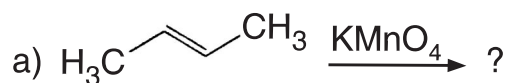
9. What is Hoffman elimination reaction ? What is its significance ?

10. How will you synthesize anthracene from benzyl chloride ?

11. Give any one method for the synthesis of carbon tetrachloride.

12. What is Lucas method ?

13. Explain the method for the isolation of glycerol from fat and oils.

14. Why phenol is more acidic than alcohols ? **(7×2=14)**

SECTION – C

Short essay/ problem type questions. **Each** question carries **3** marks. Answer **any 4** questions out of **6.**

15. Write short note on :
    a) Pinacol-Pinacolone rearrangement
    b) Claisen rearrangement.

16. Suggest any two method for the reduction of butanone to butane. Identify the name reactions for the conversion.

17. What is Borsch's reagent ? How will you distinguish benzaldehyde and phenol using Borsch's reagent test ?

18. How will you convert phenol to
    a) Salicylaldehyde,
    b) Salicylic acid ?

19. What are the reaction conditions to get propene and propyl alcohols from propyl bromide ? Identity the reactions as SN_2 and E_2. Rationalize any one with suitable mechanism.

20. Explain Haworth synthesis of naphthalene. **(4×3=12)**

SECTION – D

Long essay type – **Each** carries **5** marks. Answer **any 2** questions out of 4.

21. a) Explain Chuagaev reaction with suitable example. **2**

    b) What is Kharasch effect ? How does it differ from Markownikoff addition ? **3**

22. a) What is ozonolysis ? **2**

    b) Identify the alkene which produces acetone in ozonolysis. Write the complete reaction scheme. **3**

23. a) What is Tollen's reagent ? What is the significance of Tollen's reagent in functional group detection of organic compounds ? Illustrate with suitable examples (Scheme required). **3**

    b) Explain another test for the detection of an aldehyde functional group in organic molecules. **2**

24. How will you synthesis 1°, 2°, 3° alcohols from carbonyl compound ? Explain with suitable examples.

(2×5=10)

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