

22U519

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Name: .....

Reg.No: .....

**FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2024**

(CBCSS - UG)

(Regular/Supplementary/Improvement)

**CC19U CHE5 B07 - ORGANIC CHEMISTRY - II**

(Chemistry - Core Course)

(2019 Admission onwards)

Time : 2.00 Hours

Maximum : 60 Marks

Credit : 3

**Part A** (Short answer questions)

Answer *all* questions. Each question carries 2 marks.

1. Explain with equations how methyl magnesium bromide can be converted to ethanol.
2. Rank the following compounds in decreasing order of acidity: ethanol, 2-chloroethanol, 2, 2-dichloroethanol, 2, 2, 2-trichloroethanol.
3. Which is more acidic-phenol or para-nitrophenol? Justify.
4. "Crown ethers form inclusion compounds" Explain this statement.
5. Give the structures of: (i) 3,3-dibromo-4-ethylcyclohexanone; (ii) hex-4-en-2-one.
6. Give the equation for the reaction of cyclohexanone with ethyl cyanoacetate presence of an amine base. What is the reaction called?
7. Write the structures of (i) 4-oxoheptanoic acid; (ii) phenylethanoic acid
8. Explain a chemical test by which phenol can be distinguished from benzoic acid.
9. What happens when cinnamic acid is heated with dry soda lime?
10. How can methyl isocyanide be converted to dimethylamine?
11. Write the structural formulae of (i) sulphadiazine and (ii) sulphathiazole
12. What happens when furan is nitrated?

**(Ceiling: 20 Marks)**

**Part B** (Short essay questions - Paragraph)

Answer *all* questions. Each question carries 5 marks.

13. How can the following conversions be carried out? (a) Propanal to propan-1-ol; (b) 2-Methylpropene to 2-methylpropan-2-ol; (c) 1-Chlorobutane to butan-1-ol.
14. Give the mechanistic explanation for the orientation in acid-catalyzed ring opening of unsymmetrical epoxides.

15. Illustrate with equations the utility of Grignard reagents in the synthesis of (a) ketones and (b) carboxylic acids.
16. What is Claisen-Schmidt condensation? Explain it with a suitable example.
17. How is benzenesulphonic acid prepared? How can it be converted to (i) phenol and (ii) aniline?
18. How can p-aminoazobenzene be prepared starting from aniline?
19. Give an example (with equations) for the use of ethyl acetoacetate in the synthesis of diketones.

**(Ceiling: 30 Marks)**

**Part C (Essay questions)**

Answer any *one* question. The question carries 10 marks.

20. (a) Explain with equations how the following conversions can be effected: (i) pentanal to pentanoic acid; (ii) ethanal to but-2-enal; (iii) benzaldehyde to cinnamic acid; (iv) benzaldehyde to benzoin.  
(b) Give two chemical tests to distinguish between benzaldehyde and acetophenone.
21. (i) Discuss the various aspects related to the relative basic strengths of the three kinds of aliphatic amines and ammonia.  
(ii) Discuss the Hinsberg method for the separation of the three kinds of amines.

**(1 × 10 = 10 Marks)**

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