

21U515

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Name:

Reg.No:

FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

(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. Give equation of the following reactions: Oxidation of propan-1-ol by alkaline KMnO_4 .
2. Illustrate Reimer-Tiemann reaction.
3. Give one example for phthalein reaction.
4. Explain how crown ether helps KMnO_4 to dissolve in benzene.
5. How can ethanenitrile be converted to ethanal?
6. What are acetals? Give an example for a reaction in which an acetal is formed.
7. What product is obtained when ethyl magnesium iodide is treated solid CO_2 in dry ether solution and the product is subjected to acidic hydrolysis? Explain with suitable equations.
8. How does citric acid react with acetyl chloride?
9. Give one method of preparation of benzenesulphonic acid
10. How can cyanobenzene be converted to benzylamine ?
11. How is guanidine prepared?
12. What is the product obtained when acetoacetic ester condenses with urea?

(Ceiling: 20 Marks)

Part B (Short essay questions - Paragraph)

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

13. Write the structural formulae of (a) 4-ethylheptan-3-ol, (b) 2,3,3-trimethylbutan-2-ol, and (c) 3-bromopropane-1,2-diol.
14. What are crown ethers? Give one method of preparation of crown ether. Discuss two applications of crown ether.

15. What are Grignard reagents? Explain their general method of preparation.
16. What is Cannizzaro reaction? Give two examples.
17. How can the following conversions be effected? (a) Pentanoic acid to 2-hydroxypentanoic acid, (b) Butanoic acid to but-2-enoic acid.
18. Explain the various products obtained when nitrobenzene is reduced under alkaline Conditions.
19. How is furan prepared from succinaldehyde? How can furan be (1) nitrated, and (ii) sulphonated?

(Ceiling: 30 Marks)

Part C (Essay questions)

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

20. (a) Explain the term keto-enol tautomerism and illustrate it with regard to acetaldehyde.
(b) Explain the following reactions with suitable equations (i) Butanone is subjected to Clemmensen reduction; (ii) 3-Methylbutanal is subjected to Wolff-Kishner reduction, (iii) Acetophenone is subjected to MPV reduction.
(c) Give two chemical tests to distinguish between acetaldehyde and acetone.
21. (i) Discuss the effect of substituents on the basicity of aromatic amines.
(ii) Discuss the reduction of nitrobenzene under different conditions.

(1 × 10 = 10 Marks)
