

20U515

(Pages: 2)

Name: .....

Reg.No: .....

**FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2022**

(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 what happens when propanone reacts with ethyl magnesium bromide and the product is subsequently subjected to acidic hydrolysis?
2. Give equations for the following reactions: Allyl alcohol is heated with PCC.
3. Explain one method of preparation of phenol from chlorobenzene.
4. What happens when diethyl ether is heated with excess of conc. HI? Explain with equations.
5. Give equations for the following reactions: (a) But-2-en-1-ol is heated with PCC (b) cyclohexanol is heated with acidic dichromate.
6. Give an example (with equation) for a nucleophilic addition reaction undergone by ketones.
7. How can acetic anhydride be prepared from acetic acid?
8. What happens when crotonic acid is (1) treated with HBr and (2) heated with dil. sulphuric acid in the presence of HgSO<sub>4</sub> catalyst?
9. How can benzenesulphonic acid be converted to (i) cyanobenzene (ii) aniline? Give equations.
10. What is meant by diazotization?
11. How is guanidine prepared ?
12. What is a reactive methylene group?

**(Ceiling: 20 Marks)**

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

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

13. Explain the reactions of phenol with (a) bromine water, (b) bromine in  $\text{CCl}_4$ , and (c) conc.  $\text{H}_2\text{SO}_4$
14. What are crown ethers? Explain how crown ethers can be useful in promoting nucleophilic substitution reactions.
15. What are Grignard reagents? Explain their general method of preparation.
16. Name two reagents used for the selective oxidation of alcohols to aldehydes. Illustrate the action of each with an example.
17. (i) Discuss the origin of acidity in a carboxylic acid. (ii) Which is a stronger acid-phenol or acetic acid?
18. Explain the term azide synthesis of primary amines with a suitable example and equation.
19. Explain the basic nature of pyridine. Give two examples for the nucleophilic substitution reactions of pyridine.

**(Ceiling: 30 Marks)**

**Part C** (Essay questions)

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

20. (a) Illustrate Beckmann rearrangement with a suitable reaction and give its mechanism.  
(b) What is aldol condensation? Explain with a suitable example and give its mechanism.  
(c) Explain the term cross aldol condensation with an example.
21. (a) Discuss the reduction of nitrobenzene under different conditions.  
(b) Discuss the Hinsberg method for the separation of the three kinds of amines.

**(1 × 10 = 10 Marks)**

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