23U515 (Pages: 2) Name: .....

Reg.No: .....

FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

(CBCSS - UG)

(Regular/Supplementary/Improvement)

CC19UCHE5B07 - 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 equation what happens when butan-2-ol is heated with red phosphorus
2. What is Kolbe-Schmidt reaction? Explain with equation.
3. What are the uses of phenolphthalein?
4. What happens when ethylene oxide is heated with $LIAlH_4$? Give equation.
5. What product is obtained in each of the following reactions (1) toluene is treated with chromyl chloride and the product obtained is subjected to acidic hydrolysis, (ii) benzene reacts with benzoyl chloride in the presence of anhydrous $AlCl_3$? Give equations and name the reactions.
6. Illustrate the action of Fehling's reagent on an aliphatic aldehyde with an example.
7. Explain how 4-methylhenzoic acid can be prepared in a Grignard synthesis.
8. How does citric acid react with acetyl chloride?
9. Give an example with equation for the tosylation reaction
10. Give a method for the conversion of benzamide to aniline.
11. What are sulpha drugs? Name two.
12. How is ethyl acetoacetate converted to acetic acid?

(Ceiling: 20 Marks)

Part B (Short essay questions - Paragraph)

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

13. Give one example each to illustrate (a) Markovnikov addition of water to propene (b) anti-Markovnikov addition of water to propene.
14. Explain the Zeisel's method of estimation of methoxy groups.

15. What are Grignard reagents? Explain their general method of preparation.

16. What happens when (i) ethyl bromoacetate is treated with acetaldehyde in the presence of zinc in ether solution and the system is then subjected to acidic hydrolysis, and (ii) ethyl bromoacetate is treated with acetone in the presence of zinc in ether solution and the system is then subjected to acidic hydrolysis?

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 How can aniline be converted to a mixture of o- and p-nitroanilines?

19. Give the products of the following reactions with equations (i) Friedel-Crafts acylation of furan, (ii) Nitration of pyridine, (iii) Reduction of pyridine with H_2/Ni

(Ceiling: 30 Marks)

Part C (Essay questions)

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

20. (a) Explain the following reactions with an example each:
    (i) Clemmensen reduction; (ii) Wolff-Kishner reduction; (iii) Meerwein-Ponndorf-Verley reduction.
    (b) Explain a chemical test each to distinguish between the components of each:
    (i) Pentan-2-one and pentan-3-one (ii) Butanal and butanone

21. (i) Discuss the reduction of nitrobenzene under different conditions.
    (ii) Discuss the Hinsberg method for the separation of the three kinds of amines.

(1 × 10 = 10 Marks)

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