

**FIFTH SEMESTER B.A./B.Sc. DEGREE EXAMINATION
NOVEMBER 2020**

(CUCBCSS—UG)

Chemistry

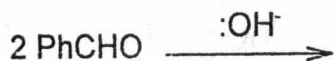
CHE 5B 07—ORGANIC CHEMISTRY—II

Time : Three Hours

Maximum : 80 Marks

Section A*Answer all questions.**Each question carries 1 mark.*

1. What is the product obtained when nitrobenzene is reduced electrolytically in strong acidic medium ?
2. Scientific study of fermentation was first made by _____.
3. Arrange in the order of increasing base strength – $C_6H_5NH_2$, $C_6H_5CH_2NH_2$, $C_6H_5NHCH_3$.
4. Active methylene compounds react with aldehydes in the presence of pyridine to give α , β -unsaturated acids. This reaction is known as _____.
5. Zeisel method is used to estimate _____ group in an organic compound.
6. Phenol can be distinguished from ethanol by reaction with _____.
7. Chlorobenzene on heating with NaOH at $300^\circ C$ under pressure gives _____.
8. Which of the following will give iodoform test ?
 - (a) CH_3OH ;
 - (b) $CH_3CH(OH)CH_3$;
 - (c) $CH_3CH_2CH_2OH$; and
 - (d) $C_6H_5CH_2OH$.
9. Identify the products in the following reaction.



10. What is the product obtained when anisole is treated with HI ?

(10 × 1 = 10 marks)

Turn over

Section B

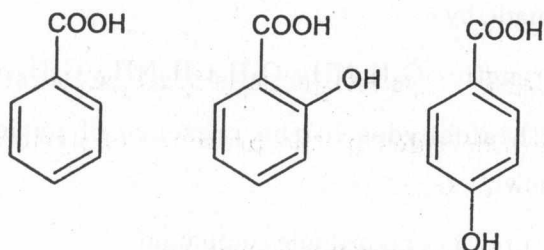
Answer at least **five** questions.

Each question carries 4 marks.

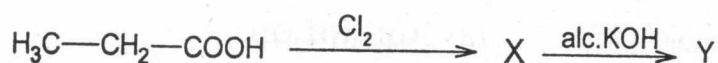
All questions can be attended.

Overall Ceiling 20.

11. 2, 4, 6-trinitrochlorobenzene can be easily hydrolysed with aqueous sodium carbonate. Why?
12. What is Nef reaction?
13. What is Walden inversion?
14. A liquid was mixed with ethanol and a drop of conc. H_2SO_4 was added. A compound with a fruity smell having molecular formula $\text{C}_4\text{H}_8\text{O}_2$ was formed. Identify the liquid and write down the reaction.
15. Compare the acidity of the following with suitable explanations:



16. Carbonyl compounds react with Grignard reagent to give almost all types of alcohols. Justify this statement.
17. Identify the reactions and write down the products X and Y in the following reaction.



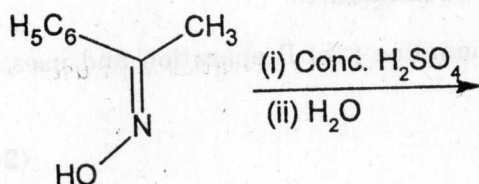
18. Write a note on Lucas reagent.
19. How will you prepare benzene sulphonic acid?
20. Write a note on Jones reagent.
21. Write down the reagents used in Clemmenson and Wolff-Kishner reduction.
22. Explain role of lactic acid in exercise.

(5 × 4 = 20 marks)

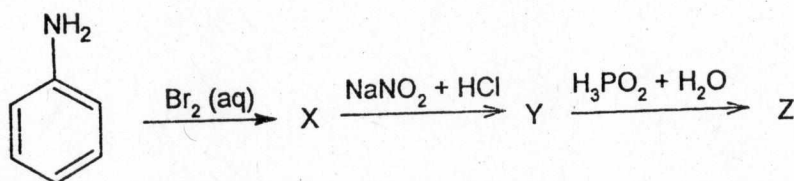
Section C

Answer at least **four** questions.
 Each question carries 7.5 marks.
 All questions can be attended.
 Overall Ceiling 30.

23. What will be the product when propionaldehyde is treated with NaOH ? Discuss the mechanism involved in the reaction.
24. Write down the product and depict the mechanism involved in the following conversion.



25. Write a note on colour change of phenolphthalein with pH.
26. Give any *two* applications of organozinc compounds and ethylacetoacetate.
27. How does Saytzeff's rule in elimination differ from Hofmann's elimination ? Illustrate with suitable examples.
28. What is Hinsberg reagent ? Write down its importance in organic chemistry.
29. Write a note on : (a) Explosives ; (b) Decarboxylation ; and (c) Preparation and use of vanillin.
30. Identify X, Y and Z. Among the conversions which is diazotization process ? Explain.



(4 × 7½ = 30 marks)

Turn over

Section D

Answer any **two** questions.

Each question carries 10 marks.

31. Give a detailed account of elimination- addition and addition - elimination mechanism in aromatic nucleophilic substitution reactions. Illustrate with suitable examples.
32. Write down the mechanism of the following reactions :
 - (a) Riemer-Tiemann reaction ; (b) Perkin's reaction ; and (c) Claisen rearrangement.
33. Explain the following reactions : (a) Swarts reaction ; (b) Schmidt reaction ; (c) Etard reaction ; (d) Carbylamine reaction ; and (e) Claisen condensation.
34. Explain the following : (a) Basicity of Guanidine ; (b) Preparation and uses of sulphur drugs ; and (c) Preparation and uses of citric acid.

(2 × 10 = 20 marks)