C 30320 (Pages : 4) Name.....

Reg. No.....

FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2017

(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. A mixture of anhydrous $ZnCl_2$ and HCl is known as ————.
2. M-Dinitrobenzene on reduction with ammonium sulphide gives ————.
3. Phenol on Kolbe's reaction gives ————.
4. 2-Methyl 2-butanol on treating with concentrated H_2SO_4, the major product obtained will be ————.
5. The major product obtained by reacting Nitrous acid with dimethyl amine is ————.
6. Complete the following reaction :—

   Bezhophenone oxime $\xrightarrow[(ii)\ H_2O]{(i)\ H_2SO_4}$

7. The major product obtained by treating o-bromoanisole with sodamide is ————.
8. Ethanamide on treating with Br2 in presence of NaOH gives ————
9. Diethyl Zinc is it known as ————.
10. Reduction of Ethanoyl chloride with Pd/BaSO4 yields ————.

(10 × 1 = 10 marks)

Section B

Answer any **ten** *questions.*
Each question carries 2 *marks.*

11. Explain E2 reaction with an example.
12. Explain Perkins reaction.
13. Compare the relative acidity of p-Methoxy benzoic acid and p-Nitrobezoic acid . Justify your answer
14. How is eosin prepared ?

Turn over

15. Outline the method to prepare saccharin from toluene.

16. Represent a sequence of reaction involving the conversion of propanoic acid to ethanoic acid.

17. Explain Blanc's rule.

18. What is Iodoform test ?

19. What is trans esterification ? Give an example.

20. What is MPV reduction ? Give an example.

21. Why is phenol acidic while alcohol is neutral ?

22. How is Indole synthesised ?

(10 × 2 = 20 marks)

Section C

Answer any **five** *questions.*
Each question carries 6 *marks*

23. (a) What is Hoffman's bromamide reaction.

    (b) Describe the Hinesburg method of separation of primary, secondary and tertiary amines from their mixture.

24. (a) Give two reactions of alkyl lithium to show its synthetic applications.

    (b) How are the following compounds prepared ?

        (i) 2-Methyl 2-butanol from 2-propanol ; and (ii) Acetaldehyde to Crotonic acid.

25. (a) Discuss the various products obtained by the reduction of nitro benzene in acidic, basic and neutral media.

    (b) What is Perkins reaction ?

26. (a) How is vanillin prepared ? Mention two important uses of vanillin.

    (b) How are NaBH4 and LiAlH4 react with C6H5CH = CH – CHO ?

    (c) What is Benzoin condensation ?

27. (a) Discuss addition elimination mechanism of aromatic nucleophilic substitution reactions ? Give the evidence in support of this mechanism

    (b) Would you expect 1-bromo 2-methylbutane to be more / less active than 1-bromo 3-methylbutane in SN2 reaction ? Explain.

28. (a) Give two reactions of alkyl lithium to show its synthetic applications.

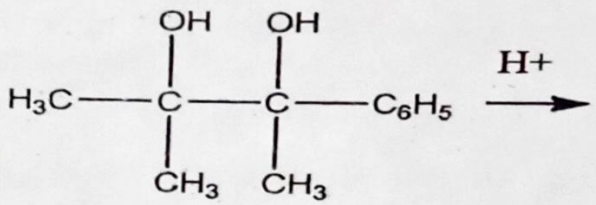
(b) Electrophilic substitution of pyrrole takes place at 2-position, whereas in pyridine at 3-position. Comment.

29. (a) Discuss the orientation of substituent groups around the multiple bond in an elimination reaction.

(b) Discuss the stereochemical aspect of SN2 and SN1 reactions.

30. (a) What is Victor Mayer test ?

(b) Predict the major product and Discuss the mechanism of the following reaction :—



(5 × 6 = 30 marks)

Section D

Answer any **two** *questions.*
Each question caries 10 *marks.*

31. Illustrate the mechanism of the following reactions :—

(a) Cannizarro reaction.

(b) Riemer Tiemann reaction.

(c) Claisen rearrangement.

(d) Beckmann rearrangement.

(e) Aldol condensation.

(5 × 2 = 10 marks)

32. (a) How is Glycine obtained by Gabriel Pthalimide synthesis.

(b) Explain how are primary secondary and tertiary amines react with nitrous acid.

(c) Discuss the principle underlying the estimation of urea by hypobromite method

(d) How is semi carbazide prepared.

(2 + 3 + 3 + 2 = 10 marks)

33. Explain why ?

(a) Meta nitro benzoic acid is a weaker acid than para nitro benzoic acid.

(b) 2, 6-Dimethyl benzoic acid , when heated with ethyl alcohol and a trace of acid fails to form the ester.

(c) Amides are much weaker bases than amines

(d) Neopentyl chloride $(CH_3)3CCH2Cl$, a primaryalkyl halide does not participate in typical SN2 reaction.

(e) Vinyl Chloride does not give nucleophilic substitution reaction.

(5 × 2 = 10 marks)

34. (a) How is Ethyl acetoacetate prepared ? Discuss two important synthetic application of Ethyl acetoacetate.

(2 + 3 = 5 marks)

(b) How is Benzene diazonium Chloride prepared ? Starting from Benzene diazonium Chloride how are the following compounds synthesised

(i) Benzoic acid ; and (ii) Nitro benzene.

(2 + 1½ + 1½ = 5 marks)

[2 × 10 = 20 marks]