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<sub>2</sub> and HCl is known as ------.
- 2. M-Dinitrobenzene on reduction with ammonium sulphide gives -----
- Phenol on Kolbe's reaction gives ———
- 2-Methyl 2-butanol on treating with concentrated H<sub>2</sub>SO<sub>4</sub>, 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 (i)  $H_2SO_4$ (ii)  $H_2O$ 

- 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 -----

 $(10 \times 1 = 10 \text{ marks})$ 

## 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?

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?

 $(10 \times 2 = 20 \text{ marks})$ 

## 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 LiAIH4 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.

- (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 :--



#### $(5 \times 6 = 30 \text{ marks})$

#### 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.

 $(5 \times 2 = 10 \text{ marks})$ 

- 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<sub>3</sub>)3CCH2Cl, a primaryalkyl halide does not participate in typical SN2 reaction.
- (e) Vinyl Chloride does not give nucleophilic substitution reaction.
- 34. (a) How is Ethyl acetoacetate prepared ? Discuss two important synthetic application of Ethyl acetoacetate.

(2 + 3 = 5 marks)

 $(5 \times 2 = 10 \text{ marks})$ 

- (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.

 $(2 + 1\frac{1}{2} + 1\frac{1}{2} = 5 \text{ marks})$ [2 × 10 = 20 marks]

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