

D 50743

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Name

Reg. No.

FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2013

(UG-CCSS)

Chemistry—Core Course

CH 5B 10—ORGANIC CHEMISTRY—II

Maximum : 30 Weightage

Time : Three Hours

Write equations wherever necessary.

I. Multiple choice and fill in the blanks type questions. Answer all *twelve* questions :

1 Acetone can be easily distinguished from other ketones by

- (a) Iodoform test.
- (b) Schiff's test.
- (c) Tollen's test.
- (d) All of the above.

2 Pericyclic reactions generally involve

- (a) Carbocations.
- (b) Carbanions.
- (c) Free radicals.
- (d) No intermediates.

3 Suggest the best reagent for allylic bromination of alkenes :

- (a) NBS.
- (b) Bromine water.
- (c) Bromine in CCl_4 .
- (d) All of the above.

4 Which one of the following halide is most reactive towards nucleophilic substitution ?

- (a) Chlorobenzene.
- (b) Iodobenzene.
- (c) Vinyl bromide.
- (d) Allyl bromide.

5 Preparation of ethers by alkoxy-mercuration involves _____ as a reducing agent in the final stage :

- (a) LiAlH_4 .
- (b) NaBH_4 .
- (c) Ni-H_2 .
- (d) Pd-H_2 .

6 Which one of the following decolourises bromine water ?

- (a) Benzoic acid.
- (b) Cinnamic acid.
- (c) Malonic acid.
- (d) Citric acid.

7 The elimination of primary alkyl halides follow _____ mechanism.

8 Phthalic acid reacts with resorcinol in presence of $\text{Con.H}_2\text{SO}_4$ gives _____

9 Zeisel's method is used for the estimation of _____ groups.

10 When acetyl chloride is treated with minimum quantity of CH_3MgBr , _____ is formed.

Turn over

11 FMO in pericyclic reactions means

12 When calcium formate is heated, _____ is formed.

II. Short answer type questions. Answer all *nine* questions

(12 x ¼ = 3 weightage)

13 What are sigmatropic reactions ? Give an example.

14 Explain Claisen Schmidt reaction.

15 Explain any two applications of Methyl lithium in organic synthesis.

16 How is malonic acid synthesised from acetic acid ?

17 What is vanillin ? How is it prepared ?

18 Explain any one mechanism of saponification.

19 Amides are very slowly hydrolysed by water. Why ?

20 Give an example of a pericyclic reaction taking place in human body.

21 Explain Wolf Kishner reduction citing an example.

III. Short essays or Paragraph questions. Answer any *five* questions

(9 x 1 = 9 weightage)

22 Explain the benzyne intermediate mechanism for aromatic nucleophilic substitution and furnish any evidence in support of the mechanism.

23 Discuss the mechanism of Reformatsky reaction. Mention any one of its synthetic application.

24 Discuss the structure of crown ethers and explain its synthetic importance.

25 Explain the chemistry of Liebermann's nitroso reaction.

26 Discuss Diels-Alder reaction using FMO method.

27 Explain the mechanism of Cope rearrangement.

28 How is phenolphthalein prepared ? Why is it colourless in strong alkali ?

IV. Essay questions. Answer any *two* questions :

(5 x 2 = 10 weightage)

29 Discuss mechanisms of S_N1 and S_N2 reactions. Comment on the effect of the structure of the substance and polarity of the solvent on the mechanism.

30 Discuss the mechanisms of the following reactions

(a) Aldol condensation ; (b) HVZ reaction ; (c) Pinacol-pinacolone rearrangement.

31 Give a detailed account of the effects of substituents on the acidity of aliphatic carboxylic acids and phenols.

(2 x 4 = 8 weightage)