

FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2015

(U.G.—CCSS)

Core Course—Chemistry

CH 5B 10—ORGANIC CHEMISTRY—II

Time : Three Hours

Maximum : 30 Weightage

Write equations wherever necessary.

I. Multiple choice and fill in the blank type questions. Answer all *twelve* questions. Each question carries a weightage $\frac{1}{4}$:

1 Which one of the following compounds is not an organometallic compound ?

(a) $(C_2H_5)_2Pb$. (b) CH_3COONa .

(c) $(CH_3)_3B$. (d) CH_3MgBr .

2 Aldehydes react with hydrazines to form _____.

(a) Hydrazones. (b) Semicarbazones.

(c) Oximes. (d) Phenylhydrazones.

3 Which one of the following will give iodoform test ?

(a) CH_3OH . (b) $CH_3CH_2CH_2OH$.

(c) $CH_3CHOHCH_3$. (d) $C_6H_5CH_2OH$.

4 Conversion of phenol into salicylaldehyde proceeds through a reactive intermediate called :

(a) Carbonium ion. (b) Carbanion.

(c) Carbene (d) None of these.

5 The carbon atom of carbonyl group is _____ hybridized.

(a) dsp^2 . (b) sp .

(c) sp^3 . (d) sp^2 .

6 Ethylene oxide reacts with Grignard reagent to give :

(a) Tertiary alcohol. (b) Ketone.

(c) Primary alcohol (d) Secondary alcohol.

7 Which one of the following acids on hydrolysis gives aniline?

(a) Anthranilic acid. (b) Adipic acid.

(c) Phthalic acid. (d) Oxalic acid.

8 In Wurtz reaction, the reagent used is _____.

(a) Zn/HCl . (b) Anhydrous $AlCl_3$.

(c) Ni . (d) Na .

- 9 When ethylmethyl ether is treated with HI, the resulting iodide will be _____.
- (a) Ethyl iodide. (b) Methyl iodide.
(c) Both ethyl and methyl iodide. (d) None of these.
- 10 Phthalic acid reacts with resorcinol in presence of conc. sulphuric acid to give :
- (a) Phenolphthalein. (b) Fluorescein.
(c) Alizarin. (d) Coumarin.
- 11 Reaction of Grignard reagent with ketone followed by hydrolysis gives :
- (a) Primary alcohol (b) Secondary alcohol.
(c) Tertiary alcohol (d) None of these.
- 12 Which one of the following acids on heating decarboxylate to phenol ?
- (a) Phthalic acid. (b) Salicylic acid.
(c) Malic acid. (d) Benzoic acid.

(12 × ¼ = weightage)

II. Short Answer Type Questions. Answer all *nine* questions. Each question carries a weightage 1 :

- 13 Give the method of preparation of carboxylic acid from alkenes.
- 14 What is benzoin condensation ?
- 15 How will you convert acetaldehyde to lactic acid ?
- 16 Explain Diels-Alder reaction.
- 17 What is aldol condensation ?
- 18 Benzoic acid is stronger than its saturated analogue cyclohexane carboxylic acid. Give reasons.
- 19 Write the mechanism of addition of HCN to acetaldehyde.
- 20 How will you convert acetaldehyde to acetone ?
- 21 Explain a method of preparation of phenetole.

(9 × 1 = 9 weightage)

III. Short Essays or Paragraph Questions. Answer any *five* questions. Each question carries a weightage 2 :

- 22 Write short notes on : (i) sigmatropic rearrangement ; (ii) modes of rotation.
- 23 Give the mechanism of : (i) Cannizzaro's reaction ; (ii) Perkin reaction.
- 24 Discuss the mechanism of acid and base catalysed cleavage of epoxides.
- 25 Give a method of preparation of Grignard reagent. How does it react with : (i) CH₃CHO ; (ii) CO₂.
- 26 Give an account of acidity of carboxylic acids.
- 27 Discuss the mechanism of Claisen rearrangement.

(5 × 2 = 10 weightage)

- IV. Essay Questions. Answer any *two* questions. Each question carries a weightage 4 :
28. (a) Discuss the mechanism of dehydration of alcohols.
(b) Explain the mechanism of Reformatsky reaction.
29. (a) Give a method of preparation of phthalic acid and how will you convert it into : (i) benzene ;
(ii) phenolphthalein.
(b) Discuss Cope rearrangement.
30. (a) How is vanillin prepared from Eugenol ? What are its uses ?
(b) Explain Zeisel's method of estimation of alkoxy group.

(2 × 4 = 8 weightage)