

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^2 . (d) sp^3 .

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 .

Turn over

- 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 x 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 x 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) **Cannizaro'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) CH_3CHO ; (ii) CO_2 .
- 26 Give an account of acidity of carboxylic acids.
- 27 Discuss the mechanism of **Claisen** rearrangement.

(5 x 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 x 4 = 8 weightage)