

FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH 2013

(CCSS)

Chemistry

CH 4B 07—ORGANIC CHEMISTRY—I

Time : Three Hours

Maximum : 30 Weightage

(Write equations wherever necessary)

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

1 Shape of acetylene is _____

- (a) Linear. (b) Tetrahedral.
(c) Trigonal (d) None of the above.

2 Most stable conformation of n-butane is _____

- (a) Anti. (b) Gauche.
(c) Skew. (d) None of the above.

3 Identify an **electrophile** from the following :—

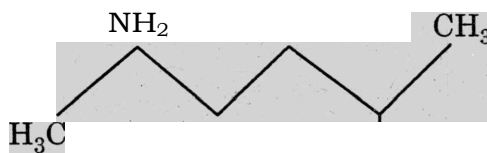
- (a) H_3O^+ . (b) NH_3 .
(c) SO_3 . (d) H_2O .

4 In the **dehydrohalogenation** of **2-Chlorobutane**, the major product is :

- (a) 1-butene. (b) 2-Butanol.
(c) 2-butene. (d) All of the above.

5 **Stereoisomers** which are not having an object mirror image relationship are named _____

6 The hybridisation of the carbon in ethylene is _____

7 The **IUPAC** name the following organic compound is _____8 The least stable **cycloalkane** is _____9 **Trans-2-butene** is obtained from **2-butyne** on reduction with _____

10 Deficiency of Vitamin A can cause _____

Turn over

11 Corey-House reaction is used to prepare

12 Nitration of naphthalene gives

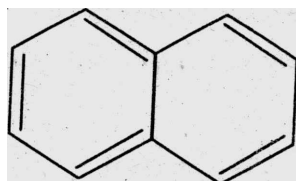
II. Short answer type questions. Answer all *nine* questions :

(12 \times $\frac{1}{4}$ = 3 weightage)

13 Acetylene reacts with ammoniacal AgNO_3 . Explain.

14 What is Kolbe Reaction ?

15 Complete the reaction



Conc. H_2SO_4

160 C

16 How is **PTFE** prepared ?

17 Draw the structure of **citral**.

18 Assign the absolute configuration of the following molecule :—

CHO

H_3C

OH

C_6H_5

19 Mention the industrial applications of ethylene.

20 Draw any two stable conformations of methyl **cyclohexane**.

21 Discuss the **sulphonation** of naphthalene at higher **temperature** ?

III. Short essays or paragraph questions. Answer any *five* questions :

(9 \times 1 = 9 weightage)

22 What is resonance ? Explain resonance in phenol.

23 What is **ozonolysis** ? What is its use in structure elucidation ?

24 Write a note on the optical activity of **biphenyls** and **allenes**.

25 How is polyethylene prepared ? Mention any *two* of its applications.

26 Give a brief note on Bayer's strain theory.

27 Explain in detail asymmetric synthesis.

28 How do you convert benzene to p-methyl **acetophenone** ?

(5 \times 2 = 10 weightage)

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

29 Give a brief account of the hybridisation, structure and stability of benzene. Discuss the orientation effect of nitro group and **OH** group in aromatic systems.

30 Discuss in detail the electron displacement effects in organic molecules. How do they involve **in** chemical reactions ?

31 Write note on the following :—

- (a) Designation of geometrical isomers.
- (b) Preparation of **PMMA**.
- (c) **Enantiomeric** excess.
- (d) Projection formula of organic molecules.

(2 x 4 = 8 **weightage**)