C 81816 (Pages : 3) Name.....

Reg. No.....

FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL/MAY 2015

(U.G.—CCSS)

Core Course—Chemistry

CH 4B 07—ORGANIC CHEMISTRY – I

Time : Three Hours Maximum : 30 Weightage

Write equations wherever necessary.

Section A

I. Multiple choice and fill in the blanks type questions. Answer all *twelve* questions. Each question carries a weightage of ¼ :

1 The type of hybridisation of carbon in ethane is :

(a) SP. (b) SP^2.

(c) SP^3. (d) SP and SP^2.

2 Which of the following hydrocarbon is obtained by the Wurtz reaction between CH_3Br and C_2H_5Br with metallic sodium in ether medium ?

(a) Ethane. (b) Propane.

(c) Butane. (d) All these.

3 The cyclo alkane which is not expected to have ring strain is :

(a) Cyclopropane. (b) Cyclobutane.

(c) Cyclohexane. (d) Cyclopentane.

4 Which of the following compound will exhibit geometrical isomerism ?

(a) Butane. (b) 2-butyne.

(c) 2-butene. (d) All these.

5 Among the carbo cations Benzyl carbo cation (A), Allyl Carbo cation (B) and a secondary carbo cation (C), the order of the stability is :

(a) A > B > C. (b) B > A > C.

(c) C > B > A. (d) C > A > B.

6 The molecule which exhibits optical isomerism is :

(a) Isobutyl chloride. (b) Sec. butyl chloride.

(c) Tert. butyl chloride. (d) n-butyl chloride.

7 Calcium carbide on hydrolysis gives _____.

8 2-butyne on reduction with sodium in liquid ammonia gives _____.

9 Natural rubber is a polymer of _____.

10 Optical isomers which are mirror images of each other are known as _____.

11 An example of a meta directing group is _____.

12 Nitration of aromatic compound is an example of _____ substitution.

(12 × ¼ = 3 weightage)

Section B

II. Short Answer type questions. Answer all *nine* questions. Each question carries a weightage of 1.

13 What is resonance ? Explain with an example.

14 What is Kolbe reaction ?

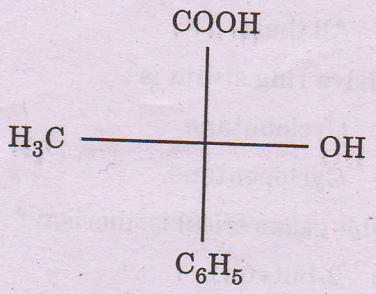
15 How is polyethylene prepared ?

16 Draw the structure of geraniol.

17 What is hydroboration ?

18 Draw the D and L forms of Erythrose.

19 Assign the absolute configuration (R or S) of the molecule :



20 What is meant by C is hydroxylation ?

21 Write any two characteristics of enantiomers.

(9 × 1 = 9 weightage)

Section C

III. Short essays *or* paragraph questions. Answer any *five* questions. Each question carries a weightage of 2 :

22 What is Corey-House reaction ?

23 Explain Steric effect with one example.

24 How will you prepare 1-butyne from acetylene ?

25 Discuss the E and Z designation of geometrical isomers.

26 What are addition polymers ? How are teflon polymers prepared ?

27 Discuss the nitration of benzene with mechanism.

28 Write briefly on asymmetric synthesis.

(5 × 2 = 10 weightage)

Section D

IV. Essay questions. Answer any *two* questions. Each question carries a weightage of 4 :

29 (i) Outline Bayer's strain theory. Calculate the angle strain for various alicyclic compounds and predict their relative stability.

(ii) Write a note on acidity of alkynes.

30 (i) What are free radicals ? Give examples.

(ii) Write a short note on the stability of free radicals.

31 (i) Define aromaticity and state Huckel's rule.

(ii) Discuss the structure and stability of benzene.

(2 × 4 = 8 weightage)