

06.06.15 (ASTU.Reg.)

Total No. of printed pages = 5

PY 132208

Roll No. of candidate

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2015

B. Pharm 2nd Semester End-Term Examination

PHARMACEUTICAL CHEMISTRY-II

(Organic Chemistry-I)

Full Marks – 100 Pass Marks – 35 Time – Three hours

The figures in the margin indicate full marks for the questions.

1. Answer any *ten* of the following questions :

2×10=20

- (i) Define polarity. How hydrogen bonding affect water solubility of a compound ?
- (ii) Describe Metamerism and Tautomerism with example.
- (iii) How will you convert 1° alcohol to 2° alcohol ?
- (iv) Draw molecular orbital structure of ammonia and acetylene.
- (v) Explain LCAO method to understand bonding and antibonding orbital.

[Turn over

(vi) Why acetylene is more acidic than ethylene ?

(vii) How will you prepare benzene from acetylene ?

(viii) What happens when acetylene react with hydrogen in the presence of Lindar's catalyst ?

(ix) What is meant by reaction intermediates ? Give examples.

(x) Describe the stability of carbocations.

(xi) How will you distinguish 1° , 2° , and 3° alcohol ?

(xii) Describe the preparation of alkene by dehydration of alcohol giving the mechanism of the reaction.

2. Answer any *ten* of the following questions :
 $3 \times 10 = 30$

(i) What do you mean by hyperconjugation ? Why is it also termed no-bond resonance ?

(ii) In what ways a covalent bond can be fissioned and what are its results ?

(iii) How do you establish the tetrahedral nature of carbon ?

(iv) Write the structures of isomeric compound with molecular formula C_3H_8O . What type of isomers are these ?

(v) Describe hybridization of oxygen and nitrogen.

(vi) How will you prepare (-) lactic acid from pyruvic acid ?

(vii) Describe Markovnikov rule with suitable example.

(viii) Write the IUPAC names of isomers having the molecular formula C_5H_{10} .

(ix) Write the structural formula of n-pentane, isopentane and neopentane. Which of these has highest boiling point and why ?

(x) An alkane with molecular weight 72, formed only one monochloro substitution product. Suggest a structure for the alkane.

(xi) Define carbocation and carboanion. Explain that a 2° carbocation is more stable than 1° carbocation but a 2° carboanion is less stable than 1° carboanion.

(xii) What are free radicals ? Discuss their characteristics and structures.

3. Answer any *ten* of the following questions :
5×10=50

(i) Describe different types of reactions that we come across.

(ii) Discuss various methods for the resolution of racemic mixtures.

(iii) Explain the mechanism when propene react with HBr in the presence of peroxide. Why HI and HCl do not give anti-Markovnikov product ?

(iv) Differentiate SN_1 and SN_2 mechanisms by giving appropriate reactions.

(v) Describe the factors affecting a reaction with suitable example.

(vi) State Huckel's rule. How can this rule be employed to explain aromaticity of organic compounds ?

(vii) Describe Baeyer strain theory and Sachse-Mohr theory regarding stability of Cycloalkane.

(viii) Describe the mechanism of electrophilic substitution reaction of benzene. Why benzene do not show electrophilic addition reaction ?

(ix) Write down five methods of preparation of primary alcohol.

(x) Explain the mechanism of halogenation of alkane.

(xi) Describe the isomerism of alkane and alkenes.

(xii) Write down five important chemical reactions of phenol.