KNT/KW/16/6547

B.Pharm. (Second Semester) (C.B.S.) Examination

PHARMACEUTICAL CHEMISTRY—II (Organic)

Paper—2 (2 T 2)

Time : Three Hours] [Full Marks : 80

N.B. :— (1) Question No. **1** is compulsory.
(2) Solve any **FOUR** questions from the remaining.
(3) Draw neat labelled diagram wherever necessary.
(4) Discuss the reaction, mechanism wherever necessary.
(5) Use of electronic calculator is permitted.

1. Solve any **FIVE** of the following :
   (a) Define stereoisomers giving examples.
   (b) Give sources of organic compounds with examples.
   (c) Explain various intermolecular forces.
   (d) Why chair conformation is more stable than the boat conformation in cyclohexane ?
   (e) What is hybrid orbital ? Explain hybridisation.
   (f) Write the principle involved in detection and estimation of elemental nitrogen in organic compounds.
   (g) Melting point of inorganic compounds is more than that of organic compounds. 5×4=20
2. (a) Write in detail about the Kjeldahl's method of Nitrogen estimation. 7
   (b) What are racemic mixtures ? Explain various methods of resolution of racemic mixtures. 8
3. (a) Define the term functional group. Enlist the various functional groups present in the organic compounds and write in brief about the types of organic reactions. 7
   (b) Define the term empirical formula and molecular formula. Give the various rules for calculating the empirical formula. 3
   (c) A qualitative analysis of papaverine, one of the alkaloids in opium showed carbon, hydrogen and nitrogen. A qualitative analysis gave 70.8% carbon, 6.2% hydrogen and 4.1% nitrogen. Calculate the empirical formula of papaverine. 5

4. (a) Define the term conformation. Write in detail about the conformation of n-butane with energy profile diagram. 7

   (b) Justify the following statements :

   (i) Trans-isomers are more stable than cis isomers.

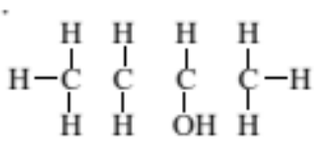
   (ii) Salicylic acid is stronger than p-hydroxy benzoic acid. 8

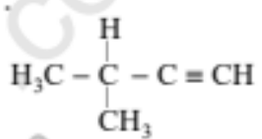
5. (a) Give brief account on hydrogen bonding and explain its effect on aqueous solubility and bond lengths. 8

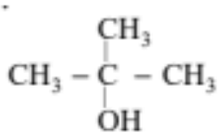
   (b) What is an orbital ? Give an account on atomic orbital and molecular orbital theory. 7

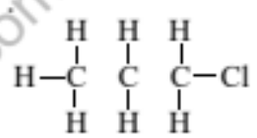
6. (a) Write in detail about the structure of cyclohexane and the conformation of substituted cyclohexane. 7

   (b) Give the IUPAC name of the following :

   (i) 

   (ii) 

   (iii) 

   (iv)  4

   (c) Write short note on Bayer's Strain theory. 4

7. (a) Define and classify alcohols with suitable examples. How will you differentiate primary, secondary and tertiary alcohols. 7

   (b) Draw structure of the following compounds :

   (i) 1, 2-Dibromopropane

   (ii) 3-methyl octane

   (iii) 2, 2-dimethyl butanoic acid

   (iv) β-naphthol. 4

   (c) Write a note on sequence rule. 4