

**B. Pharm. Semester-II (C.B.S.) Examination**  
**PHARMACEUTICAL CHEMISTRY-II (Organic)**  
**Paper-II (2T2)**

Time—Three Hours]

[Maximum Marks—80

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

1. Solve any **FIVE** of the following :
- (a) What is sp hybridization ? Explain with examples.
  - (b) What is diastereomers and enantiomers ?
  - (c) Define empirical formula and molecular formula with examples.
  - (d) What is sequence rule ?
  - (e) Give the physical properties of alkyl halides.
  - (f) Explain Bayer strain theory.
  - (g) Give the procedure to detect carboxylic acid.

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2. (a) Combustion of 5.17 mg sample of a compound gives 10.32 mg of carbon dioxide and 4.23 mg of water. The molecular weight was found to be 88. Calculate the molecular formula of the compound. 8
- (b) Describe Dumas method for estimation of Nitrogen in organic compound. 7
3. Justify any **THREE** of the following :
- (a) Chair conformation of cyclohexane is most stable.
- (b) Nitrogen in ammonia is  $sp^3$  hybridized. Justify.
- (c) Geometric isomers are more separable than enantiomers.
- (d) O-Nitrophenol has much lower volatility. 15
4. (a) Discuss Pauli's exclusion principle. 8
- (b) Write a note on Lassaigne's test. 7
5. (a) Give a brief note on polarity of bonds. 7
- (b) What is optical activity ? Explain the term specific rotation and means to measure it. 8
6. (a) Draw the structural formula and give IUPAC name of the following :
- (i)  $CH_3 \cdot CH \cdot OH \cdot CH \cdot (CH_3)_2$
- (ii)  $(CH_3)_2 \cdot CH \cdot CH_2O \cdot CH_2 \cdot CH \cdot (CH_3)_2$
- (iii)  $CH_3 \cdot CH_2 \cdot CH_2 \cdot CO \cdot CH_3$
- (iv) trans  $(CH_3)_2 - CH - CH = CH - CH (CH_3)_2$  8
- (b) Give a brief note on intermolecular forces. 7
7. (a) What are different types of organic reactions ? Explain giving one example of each. What are the factors affecting them ? 10
- (b) Write the structural formula of following :
- (i) O- Anisidine
- (ii) 1, 3 - Cyclohexadiene
- (iii) 2, 2, 4 - trimethyl pentane
- (iv) tert -Butyl bromide
- (v) 2, 2 - Dimethyl-3 -pentanol. 5