

B.Pharm 2nd Semester Exam., 2018

PHARMACEUTICAL CHEMISTRY—III
(Organic Chemistry)

Time : 3 hours

Full Marks : 70

Instructions :

- (i) The marks are indicated in the right-hand margin.
- (ii) There are **NINE** questions in this paper.
- (iii) Attempt **FIVE** questions in all.
- (iv) Question No. 1 is compulsory.

1. Answer the following as directed (any seven) :

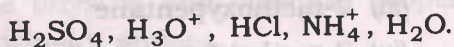
2×7=14

(a) Write at least any two differences between enantiomers and diastereomers with suitable examples.

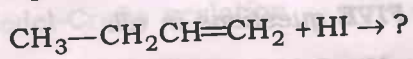
(b) A carbon atom to which four different groups are attached is known as achiral centre.

(Write True or False)

(c) Arrange the following according to order of acidic strength :



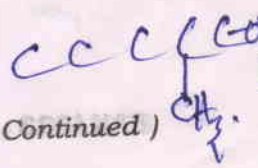
- (d) Define carbocations and carbanions terms with examples.
- (e) Draw the structure of Styrene and o-Xylene.
- (f) The typical reaction of alkene is _____ (electrophilic addition / nucleophilic addition). (Fill in the blank)
- (g) Isomers that are mirror images of each other are called _____ (enantiomers/ diastereomers). (Fill in the blank)
- (h) Complete the following reactions :



50% NaOH, Room Temp.



- (i) Arrange the following compounds of each set in order of reactivity towards $\text{S}_{\text{N}}2$ displacement :
 - (i) 2-bromo-2-methyl butane
 - (ii) 1-bromopentane
 - (iii) 2-bromopentane
- (j) Write chemical structural formulae of the following :
 - (i) Diisopropyl ether
 - (ii) Dimethyl ether
 - (iii) 2-methoxypentane
 - (iv) 2-methyl-2-pentanol



2. Write short notes on any two of the following : $7 \times 2 = 14$

(a) Polarity of bonds and polarity of molecules

(b) Molecular orbitals

(c) Intramolecular forces and inter-molecular forces

3. (a) Discuss in detail about the diastereomers with examples. 7

(b) Explain specification of configuration—R and S. 7

4. (a) Define carbocations. Explain structure, relative stabilities and stabilization of carbocations. 8

(b) Discuss E1 mechanism with suitable examples and give its evidences. 6

5. (a) Discuss the chemical properties of dienes. 7

(b) Explain nucleophilic aliphatic substitution and duality mechanism with examples. 7

6. (a) Write any five chemical properties of alcohols. 7

(b) Give physical and chemical properties of primary amines. 7

(4)

7. Write short notes on any two of the following : $7 \times 2 = 14$

- (a) Markovnikov's rule
- (b) Dienes
- (c) Kolbe reaction

8. Discuss any two of the following : $7 \times 2 = 14$

- (a) Sulphonation
- (b) Acidity of phenols
- (c) Friedel-Crafts acylation

9. Write the chemical properties of any two of the following : $7 \times 2 = 14$

- (a) Phenol
- (b) Epoxides
- (c) Ethers
