Code : 091203

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 :

H_2SO_4, H_3O^+, HCl, NH_4^+, H_2O.

(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 :

$$CH_3—CH_2CH=CH_2 + HI \rightarrow ?$$

50% NaOH, Room Temp.

$$2HCHO \rightarrow ?$$

(i) Arrange the following compounds of each set in order of reactivity towards S_N2 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

(Continued)

2. Write short notes on any *two* of the following : 7×2=14

(a) Polarity of bonds and polarity of molecules

(b) Molecular orbitals

(c) Intramolecular forces and intermolecular 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 El 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

7. Write short notes on any *two* of the following : 7×2=14

   (a) Markovnikov's rule

   (b) Dienes

   (c) Kolbe reaction

8. Discuss any *two* of the following : 7×2=14

   (a) Sulphonation

   (b) Acidity of phenols

   (c) Friedel-Crafts acylation

9. Write the chemical properties of any *two* of the following : 7×2=14

   (a) Phenol

   (b) Epoxides

   (c) Ethers

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