UG Odd Semester (CBCS) Exam., December—2016

PHARMACEUTICAL SCIENCE

(1st Semester)

Course No. : BPHCC–107

[Organic Chemistry—I
(Pharmaceutical Chemistry—I)]

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer **five** questions, selecting **one** from each Unit

UNIT—I

1. *(a)* Define inductive effect. What are the salient features of inductive effect? Illustrate the different types of inductive effect with examples. 2+3+5=10

(b) Write a note on resonance. 4

2. *(a)* Discuss in detail about the structure of an atom. Why is carbon tetravalent and not divalent? 4+1=5

(b) Define electrovalent bond and coordinate covalent bond. Classify organic compounds with examples. What is Pauli's exclusion principle? 2+5+2=9

UNIT—II

3. Classify isomerism with appropriate examples of each class. Write a note on *cis-trans* isomerism of cyclic compounds. Discuss the Cahn-Ingold-Prelog system of E-Z notation with examples. 5+3+6=14

4. What are enantiomers and diastereomers? Give examples. Write down the rules laid down by Cahn, Ingold and Prelog for R-S notation. Give the absolute configuration of D-glucose. What is the difference between staggered and eclipsed conformers? 4+6+2+2=14

UNIT—III

5. Give two methods of preparation of alkanes, alkenes and alkynes. Write down the mechanism involved in the ozonolysis of an alkene. Classify dienes with examples. (3×3)+2+3=14

6. Give a method of preparation each of mono, di and trihydric alcohol. Write a note on the mechanism of S_N1 and S_N2 reactions of alkyl halide. Write a note on free-radical substitution reaction. (2×3)+5+3=14

UNIT—IV

7. Discuss the structural elucidation of benzene ring. Write a note on orientation of electrophilic aromatic substitution. 8+6=14

8. *(a)* Give the mechanisms of the following : 4×3=12

(i) Wolff-Kishner reduction

(ii) Cumene-phenol process

(iii) Nucleophilic aromatic substitution

(b) Give the mechanism of Reimer-Tiemann reaction. 2

UNIT—V

9. Write the general method of preparation each of aldehyde and ketones. Discuss the condensation reactions showed by an aromatic aldehyde. How is citric acid synthesized? 3+8+3=14

10. How can , and hydroxy acid be synthesized by a common method? Write down the general reactions of mono-carboxylic acid. Illustrate the preparations and synthetic applications of Grignard reagent and organolithium compounds. 3+3+8=14

★ ★ ★