

Course Code	Course Title	C	H	I	E	T
<b>17U2CAC2</b>	<b>ANCILLARY CHEMISTRY – II</b> <i>(For I Mic Bio)</i>	4	4	25	75	100

## OBJECTIVES

To empower the students to

- (i) study the classification of elements and their periodic properties,
- (ii) understand the modern concepts of acids and bases,
- (iii) study the types of organic compounds,
- (iv) understand ideas of monosachharides,
- (v) study the types and properties of polysaccharides.

## LEARNING OUTCOME

- Understanding concepts of periodicity and classification of elements.
- Skill and applicability of knowledge in sugar and pharma industries.

### UNIT I PERIODIC TABLE AND ATOMIC PROPERTIES 12 Hrs

Modern periodic law - Long form of periodic table –classification of elements based on valence shell electronic configuration - s, p, d,& f blocks – Periodic properties – Atomic and ionic radii – Ionization energy – Electron affinity – Electro negativity.

### UNIT II ACIDS AND BASES 12 Hrs

Modern concepts of acids and bases – strong and weak acids and bases – acidity and basicity. Concept of pH – common ion effect – applications - buffer solutions – definition - theory of buffer action and applications – Henderson’s Equation - Strength of solutions - calculation of equivalent weights – normality- molarity – molality – mole fraction – ppm – preparation of standard solutions.

### UNIT III STUDY OF ORGANIC COMPOUNDS 12 Hrs

Alkane: Introduction – preparation and properties of ethane. Alkene: Introduction – preparation and properties of ethylene. Alkyne: Introduction – preparation and properties of acetylene. Alcohol: Introduction – preparation properties of methanol and ethanol. Ethers: Introduction – preparation and properties of dimethyl ether.

### UNITIV CARBOHYDRATES – I 12 Hrs

Monosaccharides: Definition – classification of carbohydrate – monosaccharides – properties and uses of glucose and fructose – configuration of glucose – Mutarotation - conversion of glucose to fructose and viceversa.

## UNIT V CARBOHYDRATES – II

12 Hrs

Colour reactions of carbohydrates - Disaccharides: Sucrose – manufacture – properties and uses – distinction between sucrose, glucose and fructose.

Polysaccharides: Starch: Structure, properties and uses.

### Referencebooks:

1. Puri, B.R., Sharma, L.R. and Pathania, M.S., 2004 (41<sup>st</sup>Edn.), Principles of Physical Chemistry, S.N. Chand and Co., New Delhi.
2. Puri. B.R., Sharma. L.R., 1989, Principles of Inorganic Chemistry, ShobhanLal Nagin Chand and Co., Jalandar.
3. Bhal, B.S. and ArunBahl, 2004, Advanced Organic Chemistry, S. Chand and Co. Ltd., New Delhi.
4. Soni, P.L., 1998, Text book of Organic Chemistry, Sultan Chand and Co. Ltd., New Delhi.
5. Morrison, R.T., and Boyd, R.N., 1999, Organic Chemistry, Prentice-Hall of India, Pvt. Ltd., New Delhi.