

Course Code	Course Title	C	H	I	E	T
<b>17U3CAC3</b>	<b>ANCILLARY CHEMISTRY – III</b> (For II Mic Bio)	2	2	25	75	100

## OBJECTIVES

To empower the students to

- (i) study about vitamins and its classification,
- (ii) understand the structure and sources of hormones,
- (iii) know about basic ideas of amino acids and proteins,
- (iv) study the concept of nuclear chemistry and applications of radioactivity,
- (v) understand the ideas of photochemistry and its applications.

## LEARNING OUTCOME

- Understanding concepts and sequence of DNA in protein molecules.
- Skill and awareness of radioactive treatments in various field.
- Applicability of phosphorescence and fluorescence.

### UNIT I VITAMINS 6 Hrs

**Vitamins:** Definition, classification, sources, function and deficiency of vitamins A, B-complex, C, D, E and K (structure and synthesis not expected).

### UNIT II HORMONES 6 Hrs

Structure, Source and importance of Androsterone, Estrosterone, Estrone, Testosterone, Progesterone-thyroxin.

### UNIT III AMINO ACIDS AND PROTEINS 6 Hrs

Amino acids – Definition, general methods of preparation, properties and uses – Glycine and Alanine.

Proteins – Definition, Classification, general properties – colour reactions and relationship of amino acid with proteins.

### UNIT IV NUCLEAR CHEMISTRY 6 Hrs

Fundamental particles: Nuclear isotopes, Isobars, Isotones and Isomers- Difference between chemical reactions and nuclear reactions - Group displacement law -Concept and applications of

nuclear fission and fusion - Applications of radioactivity in medicine, agriculture and industry - as tracer elements in the investigation of reaction mechanism - carbon dating.

## **UNIT V      PHOTOCHEMISTRY**

6 Hrs

Introduction to photochemistry- Difference between thermal and photo chemical reaction statement of Grothuss-Draper Law, Stark-Einstein's Law, Quantum yield, Jablonski diagram- Phosphorescence, Fluorescence, Chemiluminescence-Definition with examples. Photosynthesis, Photosensitization.

### **Reference books:**

1. Bhal, B.S. and ArunBahl, 2004, Advanced Organic Chemistry, S. Chand and Co. Ltd., New Delhi.
2. I.L. Finar, "Organic Chemistry", Vol. I and II, 6<sup>th</sup>edn., ELBS, Singapore, 1994.
3. 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.
4. Morrison, R.T., and Boyd, R.N., 1999, Organic Chemistry, Prentice-Hall of India, Pvt. Ltd., New Delhi.