Government Degree College Baramulla

SEMESTER 3rd **MAJOR/MINOR COURSE**

Subject: Clinical Biochemistry

Title: CLINICAL PHYSIOLOGY AND DIAGNOSTICS-II Code: BCB22C301

CREDIT: (4+2) THEORY: 04; PRACTICAL: 02 **Contact Hours: 64(T) + 64 (L)**

Course Objectives:

- *To impart students basic knowledge of hormones,their classification and regulation.*
- *To familiarize students with different type of hormones.viz*
- *The students will understand the mechanism of action of hormones.*
- *To acquaint students with disorders associated with secretion of hormones.*
- *The students will learn about the role of vitamins in metabolism and the disorders associated with various vitamin deficiencies.*
- *The student will be able to identify laboratory investigations associated with diagnosis of hormonal disorders*
- *To acquaint students with diagnostic significance and principle of Lab tests used for diagnosis hormonal disorder or vitamin deficiency*

Learning outcomes: On completion of the course, the student should be able to:

- *Explain the hormones, their classification, mechanism of action and regulation.*
- *Know the pathophysiology of disorders associated with hormones*
- *Explain the classification of vitamins, their metabolic role and dietary requirements*
- *identify the meaning and use of laboratory investigations associated with disorders associated with hormone secretion and vitamin deficiency*
- *Describe the diagnostic significance of Lab tests used for diagnosis hormonal disorder or vitamin deficiency*
- *Know the principles of analytical measurement of laboratory investigations associated with diagnosis of hormone disorder or vitamin deficiency*

Unit-1: Introduction to Hormones (16 Hours)

General characteristics and classification of hormones, Difference between enzymes and hormones, Mechanism of hormone Action, Regulation of hormone secretion

Unit-2: Hormones-I (16 Hours)

Physiology and associated disorders of Hypothalamus, Pituitary Gland, Thyroid Gland- Hypo-Hyperthyroidism, Grave's disease, Hashimoto hypothyroidism and Goiter, Thyroid function tests, Adrenal gland- Cushing syndrome, Addison's disease

Unit-3: Hormones-II (16 Hours)

Physiology and associated disorders of Gonadal hormones and Gastro-intestinal hormones,Pancreatic hormones and glucose homeostasis, Parathyroid hormones and calcium homeostasis

Unit-4: Vitamins and deficiency disorders (16 Hours)

General Classification of Vitamins, Metabolic role, sources and dietary requirements of Vitamin A,D,E,K,C and B complex vitamins. Disorders associated with vitamin deficiencies

PRACTICAL (2 Credits: 60 Hours)

1. Determination of Serum amylase activity.
2. Determination of Serum inorganic phosphate.
3. Colorimetric determination of steroid hormones.
4. Estimation of Vitamin D levels in serum
5. Estimation of Calcium levels in serum
6. Estimation of Thyroid hormones-T3, T4, TSH

Recommended Books:

1. Guyton and Hall Textbook of Medical Physiology by John E. Hall, Michael E. Hall. Publisher: Elsevier Publishers
2. Textbook of Medical Biochemistry by MN Chatterjea and Rana Shinde. Publisher: Jaypee
3. Lippincott Illustrated Reviews Bbiochemistry by Denise R. Ferrier. Publisher: Wolters Kluwer
4. Clinical Chemistry: Techniques, Principles, Correlations by Michael L. Bishop, Edward P. Fody, Larry E. Schoeff. Publisher: Lippincot Williams & Wilkins
5. Harper's Illustrated Biochemistry by Robert K Murray. Publisher: Mc Graw Hill Lange Publications

Government Degree College Baramulla