

# LJ UNIVERSITY

## LJ INSTITUTE OF PHARMACY

### SEMESTER: II

**Subject Name: HUMAN ANATOMY AND PHYSIOLOGY-II**

**Subject Code: BP204TP**

**Scope:** This subject is designed to impart fundamental knowledge on the structure and functions of the various systems of the human body. It also helps in understanding both homeostatic mechanisms. The subject provides the basic knowledge required to understand the various disciplines of pharmacy.

**Objectives:** Upon completion of the course student shall be able to

1. Explain the gross morphology, structure and functions of various organs of the human body.
2. Describe the various homeostatic mechanisms and their imbalances.
3. Identify the various tissues and organs of different systems of human body.
4. Perform the hematological tests like blood cell counts, haemoglobin estimation, bleeding/clotting time etc and also record blood pressure, heart rate, pulse and respiratory volume.
5. Appreciate coordinated working pattern of different organs of each system
6. Appreciate the interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human body.

**Teaching scheme and examination scheme:**

Teaching Scheme				Evaluation Scheme			
Theory	Tutorial	Practical	Total	Theory		Practical	
				External	Internal	External	Internal
3	1	4	8	75	25	35	15

Module	Course Contents	Hours
1	<b>1.1 Nervous system:</b> Organization of nervous system, neuron, neuroglia, classification and properties of nerve fibre, electrophysiology, action potential, nerve impulse, receptors, synapse, neurotransmitters <b>1.2 Central nervous system:</b> Meninges, ventricles of brain and cerebrospinal fluid, Structure and functions of brain (cerebrum, brain stem, cerebellum), spinal cord (gross structure, functions of afferent and efferent nerve tracts, reflex activity) <b>1.3 Peripheral nervous system:</b> Classification of peripheral nervous system: Structure and functions of sympathetic and parasympathetic nervous system. Origin and functions of spinal and cranial nerves <b>1.4 Special senses:</b> Structure and functions of eye, ear, nose and tongue and their disorders.	10
2	<b>2.1 Respiratory system :</b> Anatomy of respiratory system with special reference to anatomy of lungs, mechanism of respiration, regulation of respiration, Lung Volumes and capacities transport of respiratory gases, artificial respiration, and resuscitation methods. <b>2.2 Urinary system :</b> Anatomy of urinary tract with special reference to anatomy of kidney and nephrons, functions of kidney and urinary tract, physiology of urine formation, Counter Current Mechanism micturition reflex and role of kidneys in acid Base balance, role of RAS in kidney and disorders of kidney.	10
3	<b>3.1 Endocrine system :</b> Classification of hormones, mechanism of hormone action, structure and functions of pituitary gland, thyroid gland, parathyroid gland, adrenal gland, pancreas, pineal gland, thymus, other and their disorders <b>3.2 Other Endocrine Tissue and Cell:</b> Heart, Liver, Kidney and GIT	10

4	<b>4.1 Reproductive system:</b> Anatomy of male and female reproductive system, Functions of male and female reproductive system, sex hormones, physiology of menstruation, fertilization, spermatogenesis, oogenesis, pregnancy and parturition. <b>4.2 Embryonic Development and Family Planning</b>	05
<b>Total Hours</b>		35

## Practical

1. To study the integumentary and special senses using specimen, models, etc.,
2. To study the nervous system using specimen, models, etc.,
3. To study the endocrine system using specimen, models, etc
4. Demonstration of CPR
5. To demonstrate the function of olfactory nerve
6. To examine the different types of taste.
7. To demonstrate the visual acuity
8. To demonstrate the reflex activity
9. Recording of body temperature
10. To Study the various techniques of IVF
11. Determination of tidal volume and vital capacity
12. Study of Stethography
13. Study of digestive, respiratory, cardiovascular systems, urinary and reproductive systems with the help of models, charts and specimens
14. Recording of basal mass index
15. Study of family planning devices and pregnancy diagnosis test

### **Recommended Books (Latest Editions)**

1. Essentials of Medical Physiology by K. Sembulingam and P. Sembulingam. Jaypee brothers medical publishers, New Delhi
2. Anatomy and Physiology in Health and Illness by Kathleen J.W. Wilson, Churchill Livingstone, New York
3. Physiological basis of Medical Practice-Best and Taylor. Williams & Wilkins Co, Riverview, MI USA
4. Text book of Medical Physiology- Arthur C, Guyton and John.E. Hall. Miamisburg, OH, U.S.A
5. Principles of Anatomy and Physiology by Tortora Grabowski. Palmetto, GA, U.S.A
6. Textbook of Human Histology by Inderbir Singh, Jaypee brothers medical publishers, New Delhi
7. Textbook of Practical Physiology by C.L. Ghai, Jaypee brothers medical publishers, New Delhi
1. Practical workbook of Human Physiology by K. Srinageswari and Rajeev Sharma, Jaypee brother's medical publishers, New Delhi

### **Reference Books:**

1. Physiological basis of Medical Practice-Best and Taylor. Williams & Wilkins Co, Riverview, MI USA
2. Text book of Medical Physiology- Arthur C, Guyton and John. E. Hall. Miamisburg, OH, U.S.A  
Human Physiology (vol 1 and 2) by Dr. C.C. Chatterje, Academic Publishers Kolkata.