



TRIPURA UNIVERSITY

(A Central University)

Suryamaninagar

SYLLABUS

OF

Human Physiology

(General)

Semester- III

UNDERGRADUATE

HUMAN PHYSIOLOGY (GENERAL)

Semester 03

Paper 03

Total Marks — 100

THEORY (P3A)

Total Marks — 50

Unit VII: Neurochemistry and Neurophysiology (25 marks)

1. Macromolecular neurochemistry: Carbohydrate utilization in the brain, Role of Protein and Lipids in the brain.
2. Transmitter neurochemistry: Acetylcholine, Catecholamines, serotonin, Amino acids and Peptides.
3. Skin and Cutaneous receptors: Skin structure, Diversity and types of receptors.
4. Structural and Functional organization of nervous system.
5. Properties of neuron, genesis and propagation of nerve impulse.
6. Transmission of impulse: Synaptic and Myoneural.
7. Reflex, Reflex arc. Properties of reflex action, Conditioned and unconditioned reflexes.
8. Ascending (sensory) tracts: origin, course, termination and function.
9. Descending (Motor) tracts: origin, course, termination and function.
10. Modern concept of Skeletal muscle contraction.

UNIT VIII: Renal Physiology and Environmental Stress Biochemistry (25 marks)

1. Anatomical structure of kidney, Structure and function of nephron, GFR, factors affecting GFR.
2. Mechanism of urine formation, Formation of dilute and concentrated urine. Normal and abnormal constituents of urine- their significance, Inulin and creatine clearance test.
3. Micturition and reflexes.
4. Renal circulation: course and peculiarities.
5. Non-excretory functions of kidney: i) water balance, ii) renin-angiotensin system iii) acid-base balance, iv) Role in erythropoiesis.
6. Chronic renal failure- Causes, Renal Hypertension.
7. Free radicals and Oxidative Stress, Generation of free radicals in the blood.

8. Role of superoxide dismutase, catalase, Glutathion in oxidatrive stress physiology, Heavy metals as agents of oxidative stress.
9. Major antioxidants: role of Vitamins and minerals as antioxidant, pestisides, Organo-phosphate, Organo-Chlorine and carbamate: their toxic action on human body.
10. Actrive and passive smoking, Major harmful compounds in smoke and their deleterious effects on human body.

Add on topics:

1. Somatotyping- basic idea
2. Adolescence Growth- General Idea
3. Kidney stones formation –general idea
4. Diabetes and kidney function relationship
5. Heavy metal and their toxic effect

Suggested Readings:

- i. Concise text book of physiology – Indu Khurana; Arushi Khurana
- ii. Text Book of Physiology – Prof. A. K. Jain
- iii. Essentials of Medical Physiology - Anil Baran Singha Mahapatra; G S Mahaptra

PRACTICAL (P3B)

Total Marks — 50

1. Identification of abnormal constituents of Urine: albumin, ketone, sugar (glucose), bile salt and blood.
2. Estimation of creatinine in blood.
3. Models of Excretory system: study of Kidney, Ureter, Urinary bladder and Urethra: their anatomical position, structure and function.
4. Identification of histological slides in relation to skin and excretory system.
5. Human Reflexes:
Superficial (Planter/Abdominal reflexes), Deep (Knee-Jerk/ Biceps & Triceps jerk reflexes)
6. Determination of muscle strength and endurance by Handgrip Dynamometry.

Distribution of marks:

Total Marks: 50
Internal assessment: 10
Term and exam: 40

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| 1. Three experiments: | 10 x 3= 30 |
| 2. Practical Note Book | 05 |
| 3. Viva Voce | 05 |