



TRIPURA UNIVERSITY

(A Central University)

Suryamaninagar

SYLLABUS

OF

Human Physiology

(General)

Semester- IV

UNDERGRADUATE

# **HUMAN PHYSIOLOGY (GENERAL)**

**Semester 04**

**Paper 04**

**Total Marks — 100**

**THEORY (P4A)**

**Total Marks — 50**

## **Unit IX: Brain and Sensory Physiology (25)**

1. Cerebrum: Histology, area and centers in the central cortex, method of localization and function, Thalamus, Hypothalamus, connections and functions.
2. Cerebellum- Histology, Nuclei, Connections and Functions.
3. Concept of ANS- Classification, Structural and Functional organisation.
4. Basal ganglia structure, connections and functions.
5. Electrical activities of cerebral cortex, Physiological basis of EEG, epilepsy, Types of Sleep and effect of sleep deprivation.
6. CSF- composition, formation, circulation and function.
7. Eye: histology of retina, Photochemical changes after exposure of light on retina, accommodation, refractive errors and their corrections, Argyll Robertson pupil, visual pathway.
8. Ear: Structure of external, internal and middle ear. Propagation of sound waves through different parts of ear and their role in hearing, Auditory pathway.
9. Olfaction and Gustation: Receptors involved and their mode of perception, Neural pathway for transmission.
10. Parkinson and Alzheimer's disease.

## **Unit X: Endocrinology and Reproductive Physiology (25)**

1. Anatomical organization of endocrine glands in the body, Chemical classification of hormones, Mode of action of hormones, Signal Transduction and Second messengers.
2. Pituitary gland: histology, function of the anterior and posterior pituitary glands, their hormones, Symptoms of hypo and hyper function of TSH and ACTH.
3. Thyroid, Parathyroid and Adrenal gland: Histology, chemical nature, mode of action, physiological function.

4. Endocrine Pancreas: Histology of Islets of Langerhans, Chemistry and Function of insulin and glucagon; Diabetes mellitus- type I and Type II diabetes; their cause, Blood sugar regulation, role of different hormones, Glucose tolerance and their importance, Mode of action of insulin, role of GLUT transporters.
5. Regulation of hormones feedback mechanism.
6. Anatomical organization of male and female reproductive system; Primary and Secondary sex organs.
7. Testis-histology, Spermatogenesis, Factors affecting Spermatogenesis, Hormones of testis and their functions.
8. Ovary-Histology, Oogenesis, Hormones of Ovary their function and mode of action. Menstrual cycle and its regulation.
9. Concept of Fertilization, Structure of Placenta, Placental hormone and their functions, Development of three germinal layers, Pregnancy Test.

**Add on topics:**

1. Toxicology- general concept
2. Importance of Physical exercise.
3. Role of Physical exercise on lung function.
4. Binocular and stereoscopic perception
5. Abnormalities of taste
6. Abnormalities of smell sensation
7. Neuroscience method- neuroimaging.

**Suggested Readings:**

- i. Text Book of Physiology – A. K. Jain
- ii. Guyton and Hall text book of Medical Physiology - John E. Hall; Michael E Hall.
- iii. Concise text book of physiology – Indu Khurana; Arushi Khurana.

## **PRACTICAL (P4B)**

Total Marks — 50

1. Histological slides and models on brain and endocrine system. Study of anatomical position, structure and function.
2. Model of Reproductive system. Study of reproductive system: organs in female pelvic cavity- their anatomical position Structure and Function (uterus, cervix, falopian tube, ovary).
3. Histological slides on ovary, uterus and cervix. Study of primary, secondary and Tertiary graffian fillicles, corpus leuteum, oocyte and sperm.
4. Models of eye, ear, nose, skin and tongue, structure and function of different parts.
5. Tests foe detecting defects of color vision.
6. Rinne's/Weber's tests for deafness.
7. Romberg's sign- Vestibular function.

### **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         |