(BM-116) - Physiology-II

Course Outline:

Theory:

1. **Nervous System**
    1. Organization of Nervous System
    2. Basic functions of synapses
    3. Neuronal Mechanism and circuits for processing information
2. **Motor Functions**
    1. Spinal cord and the cord reflexes
    2. The cerebral cortex and intellectual functions of the Brain
    3. Motor function of the Brain stem
    4. Vestibular control of postural reflexes
    5. Cerebrum and basal ganglia
    6. Reticular
3. **Somatic Sensations**
    1. Mechanoreceptive sensations
    2. Pain
    3. Thermal and visceral pain
    4. Headache
4. **Behavioral functions of the Brain**
    1. Limbic System
    2. Role of the Hypothalamus
    3. Control of the vegetative functions of the body
    4. The Autonomic nervous system
    5. The Adrenal Medulla
    6. Electrical Activity from Brain
5. **Endocrinology and Reproduction**
    1. Introduction to Endocrinology and the pituitary Hormones;
    2. Hormonal functions in male and female

List of Practicals:

1. Study of kymograph
2. Recording of simple muscle twitch in Gastrocnemius sciatic nerve preparation
3. Recording of the effect of two successive stimuli on the nerve muscle preparation
4. Recording of the effect of continuous stimuli (fatigue) in a nerve muscle preparation
5. To demonstrate phenomenon of tentanisation
6. Effect of temperature on the simple muscle twitch
7. Demonstrate the superficial reflexes on a given subject
8. Demonstrate the deep reflexes on a given subject
9. To observe the receptor adaptation associated with Paccinian Corpuscle and other receptors in a computer simulated program
10. To illustrate the principle of phase locking in auditory fibers by using the compute simulated program
11. Determination of visual field in human subject.
12. Observe and study the spectrum and waveforms of different vowels sound and their relationship with the configuration of the vocal tract

13. Study the movement in basilar membrane during the passage of sound waves of different frequencies, on a simulated mode
14. a) To calculate nerve conduction velocity from twitch records obtained by using a nerve-muscle preparation using Kymograph. (b) To calculate nerve conduction velocity from twitch records obtained by using a nerve-muscle preparation using powerlab.
15. To locate the gustoreceptors in the human
16. (a) To calculate nerve conduction velocity from twitch records obtained by using a nerve-muscle preparation using Kymograph. (b) To calculate nerve conduction velocity from twitch records obtained by using a nerve-muscle preparation using powerlab. To locate the gustoreceptors in the human
17. Demonstration of the recording of an (extracellular) action potential from frog sciatic nerve (monophasic & biphasic) on oscillograph / oscilloscope
18. Study of reflex movements in spine of frog; Effect of acid treatment, Effect Effects of electric shock & Effect of Strychnine

Suggested Teaching Methodology:

- Lecturing
- Written Assignments Report Writing ## **Suggested Assessment:**

Theory (100%)

- Sessional (20%)
- Quiz (12%)
- Assignment (8%)
- Midterm (30%)
- Final Term (50%)

Laboratory (100%)

Text and Reference Books:

1. Text book of Medical Physiology by Guyton and Hall (13th Edition).
2. Essential of Medical Physiology by Jaypee (6th Edition).
3. William F, “Review of Medical Physiology”.