TRIPURA UNIVERSITY

(A Central University)
Suryamaninagar-799022

Syllabus

For

Semester – II

Physiology (Major/General)

Year 2014

Honours

Semester 02, Paper 02

Total Marks: 60

Module –V: Physiology of Excitable Cell (30)

1. Structure, properties and classification of nerve cell and fibres
2. Degeneration and regeneration of nerve fibres
3. Properties of nerve fibres, modern concept of generation of resting potential, generator potential,
4. Action potential. Propagation of nerve impulse.
5. Structure of synaptic junction. Properties of synapse. Classification.
6. Transmission of nerve impulse across the synaptic junction.
7. Neuro-muscular junction-structure
8. propagation of nerve impulse across the neuro-muscular junction.
9. Mechanism of transduction of stimuli from sensory receptor.
10. Reflex arc & reflex action. Properties of reflex action, classification of reflexes. Conditioned and unconditioned reflexes.
11. E-C coupling, Sliding filament theory, Modern concept of muscle contraction, isotonic and isometric contraction.

Module - VI: Cardio vascular system (30)

1. Anatomy of the heart, innervations of heart and blood vessels.
2. Junctional tissues of heart, origin and spread of cardiac impulse, conduction defects: arrhythmia, AV block, bundle branch block.
3. Cardiac output, measurements, factors controlling cardiac output
4. Heart sounds-significances, murmur-causes
5. Blood pressure: factors affecting blood pressure, regulation of blood pressure with special reference to sino-aortic mechanism. Bradycardia. Tachycardia, hyper-tention: primary and secondary.
6. E.C.G: different lead systems, different waves and intervals, their significances

7. Einthovein's law, determination of electrical axis, significance.
8. Courses, peculiarities of coronary circulation,
9. Atheroscrerosis, CHD, Cardiac failure, Angina pectoris, CVS shock, mitral stenosis.
10. Hemorrhage - effects and compensatory adjustment.

HONOURS-2nd semester

PRACTICAL

Total mark - 40

A) HEMATOLOGICAL EXPERIMENTS: 10 marks

1) Preparation of blood film, identification of different blood cells.
2) Total count of RBC and WBC, Differential count, Arneth count.
3) Determination of hemoglobin concentration.
4) Determination of MCV, MCH, MCHC
5) Blood group determination.
6) Coagulation time, bleeding time and ESR.
7) Preparation of Hemin crystal.

B) Measurement of Heart rate, blood pressure, effect of posture : 06 marks

C) Study of Microscope Squamos epithelium : 04 marks

D) Study of human skeleton: 04

EXAMINATION:

End term: 32 marks

Internal assessment: 8 marks

End term:

a. Experiment: 24
b. Viva- voce - 4
c. Lab note book - 4

Elective

Semester 01, Paper 01

SAME AS HONOURS

Semester 02, Paper 02

Total Marks: 50

Module V: Cardiovascular and Respiratory Systems

Cardiovascular System

1. Anatomy of human heart and its innervations, course of circulation of blood through it
2. Properties of cardiac muscle and junctional tissues, origin and spread of cardiac impulse
3. Cardiac cycle and heart sound; significance of different heart sounds
4. Cardiac output – its determination and factors controlling cardiac output – regulation of cardiac output
5. Hear rate – factors controlling it, tachycardia, bradycardia
6. Blood pressure – regulation of blood pressure, concept of hypertension
7. Atherosclerosis, coronary thrombosis
8. E.C.G. different lead systems, different waves and intervals, their significances

9. Einthoven's law, determination of electrical axis

10. Anatomy of respiratory tree and histology of trachea,alveoli, lung compliance, surfactants, airways reistance

11. Respiratory muscles, mechanism of respiration

12. Regulation respiration

13. Transport of respiratory gases, oxygen dissociation curve, factors affecting dissociation curve and their significances

14. Spirometry, lung volume and capacity

15. Coronary and pulmonary circulation

Respiratory system

Module VI: Digestion and Metabolism (25)

Digestion

1. Anatomy, histology and function of alimentary tract and digestive glands.
2. Composition of different digestive juices, mechanism of secretion. Formation of saliva. HCl, gastric juice, pancreatic juice, bile-functions.
3. Digestion and absorption: Carbohydrates, Proeins, Fats.
4. Movements of alimentary tract
5. Absorption of Iron, Vitamin B_{12}, Calcium.
6. Gastrointestinal hormones- gastrin, secretin, cck: source and function.

Meatbolism

7. Enzymetic steps in glycolysis, TCA cycle, Cori cycle and their significance. HMP pathway and its significance.
8. Glycogenesis, glycogenolysis, gluconeogenesis

9. Energy during glycolysis and TCA cycle, brief description of E.T.C, oxidative phosphorylation
10. Beta oxidation, steps, energy change, ketone bodies, prostaglandins-significance.
11. Deamination and transamination of amino acids, urea formation

Elective

2nd SEMESTER

PRACTICAL- 50 Marks

A) HEMATOLOGICAL EXPERIMENTS:- 07

1. Preparation of blood film and identification of blood cells.
2. Arneth count, Differential count.
3. Estimation of hemoglobin,
4. Total count of RBC and WBC
5. Blood group determination
6. Coagulation time and bleeding time
7. Preparation of Hemin crystal.

B) Measurement of blood pressure, heart rate. : 07

C) Study of microscope & squamos epithelium.: 05

D) Qualitative identification of physiological important substances- HCL, Lactic acid, Uric acid, Albumin, Peptone, Gelatin, Starch, Dextrin, glucose, Fructose, Lactose, Maltose, Sucrose, Urea, Bile salt, acetone, glycerol. 07

E) Study of human skeleton. 04

Examination:

End Term : 40
Internal assessment: 10

End Term :
Experiment: 30; Viva voce: 5;
Practical Note Book: 5.

Pravin Kumar Roy
Amritabha Kar. 15.9.14
Shalipta Pal
Sankar Das (Deb) 15.9.14

Practical examination: 2nd semester:

General(practical)- 50

Internal- 10

Termed-40
Breakup
Heamatology- 07

CVS- 07

Skeletal muscle / node of Ranvier- 05

Unknown qualitative- 04

Human skeleton- 05

Viva- 05

Practical notebook-05

Major (Practical)- 40

Internal assessment- 08 Termed-32

Breakup

a) Heamatology- 10
b) CVS- 06
c) Skeletal muscle/NOR- 04
d) Human skeleton-04

Viva- 04
Notebook- 04

Year 2014