

# TRIPURA UNIVERSITY

(A Central University)
Suryamaninagar-799022

Syllabus

OF

Human Physiology (General & Major)

Semester - W

# HUMAN PHYSICLOGY HONGURS (TDPH)

Semester-04

PAPER-CA (H4A)

Total Marks: (0

# UNIT- IX: Respiratory system & Aviation Physiology (30 Marks)

- 1. Anatomy and histology of respiratory tract and organs: Muscles of respiration.
- 2. Mechanics of breathing: Mechanism of breathing, Respiratory pressures, Lung compliance, Surfactant, airway resistance.
- 3. Pulmonary function test: Lung volume and capacities: Spirometry: measurement of Vital capacity, FVC, Timed Vital Capacity (FEV1), MVV(MBC), PEFR with their significance.
- 4. Course, peculiarities and control of pulmonary electricities.
- 5. Transport of O2 and CO2, O2 dissociation curve- theoret affecting and significance.
- 6. Regulation of respiration-neural and chemical.
- 7. Hypoxia- Types, causes and effects:
- 8. Basic concepts on Asphyxia, Apnoea, Hyperphoea, Cyanosis, Periodic breathing, Dyspnoca, Chronic obstructive pulmonary diseases-asthma, restrictive pulmonary disease-emphysema.
- 9. High altitude physiology: Barometrie and partial pressure of O<sub>2</sub> at high altitude, changes in the body in high altitude, motion sickness; acclimatization to high altitude.
- 10. Aviation Physiology- Accelerative and gravitational force, offices of positive and negative G force on body, space physiology- effects of weightlessness on Cardio-vascular system, musculoskeletal system, blood, immune system; space wortion sickness.

## UNIT X: ERGONOMICS AND SPORTS PHYSIOLOGY

- Scope & application of ergonomics and work physicle ::
   Static & Dynamic work; Classification of work and exercise.
- 2. Energy cost of different physical activities- its determination; Ergometry- working principle of ergometers- bicycle and treadmill.
- 3. Importance of measurement of different physiological numberers such as heart rate (pulse rate),  $O_2$  consumption, blood pressure etc
- 4. Anthropometry in ergonomics- common anthropometric measurements used in work place design.
- 5. Muscles in exercise-strength, power & endurance of muscles; Muscle metabolic system in exercise (energy source during muscular exercise): Nutrients used during exercise.
- 6. Physiological changes during exercise- cardiovascular(circulatory) & respiratory changes; steady state; second wind.; Fatigue- causes.
- 7. Metabolic changes during exercise- anaerobic power (capacity): Maximal aerobic power (VO<sub>2</sub>max) its determination & significance, Recovery of metabolic systems after exercise. O<sub>2</sub> debt- lactacid & alactacid
- 8. Exercise training: principles of training; acrobic & anearobic training: Effects of training on muscles, cardiovascular (circulation), respiratory systems.
- 9. Nutrition/diet in athletics performance pregame meal: glycogen/carbohydrate loading.
- 10. Doping in sports; ethical issues; harmful offects of caffords, steroids, amphetamine and cocaine abuse on health.

## HUMAN PHYSIOLOGY

# TDPH, 4th Semester, Practical

## PAPER-H4B

Warts- 40

## Group-A

- 1. Spirometric determination of VC, FVC, FEV1, FEV1, MVV
- 2. Determination of heart rate, P-R interval, Q-T, QRS du attion and S-1 segment from electrocardiogram.
- 3. Determination of electrical axis of heart from standard Hrab leads electrocardiogram.
- 4. Effect of posture and exercise on blood pressure.
- 5. Determination of VO2 max by Queens Coolege Step Text.

## Group-B

- 6. Prediction of BMR using prediction equation of ICMR & determination of BMR of a person from the graphical record of Benedict Roth apparatus from the supplied graphical record.
- 7. Estimation of body fat by using skin fold method
- 8. Determination of respiratory rate by oneumograph: Effect of Hyperventilation. Breath holding & exercise on respiratory pattern.

## Group-C

- 9. Determination of PFI by Harvard step test and graphical appresentation of recovery pulse rate.
- 10. Determination of muscle strength & endurance by Hand Grip Dynamometer.
- 11. Determination of muscular efficiency by emography.

## Distribution of marks:

TOTAL MARKS	: 40	
Internal Assesmen	nt: 08	
Term end Exam:	32	
A.	Group A (Any one experiment :	80
B.	Group B (Any one experiment):	08
C.	Group C (Any one experiment:	08
D.	Practical notebook:	()4
ъ Е.	Viva voce:	0.4



# TRIPURA UNIVERSITY

(A CENTRAL UNIVERSITY)

SURYAMANINACAR, 799-22

Syllabus for

B. Sc. TDPG

HUMAN PHYSIOLOGY

SEMESTER-IV (GENERAL)

YEAR 2015

#### HUMAN PHYSICI OG F

## TDPG, 4th SEIVIESTER, THEORY

#### PAPER-P48

MARKS-50

# UNIT IX: BRAIN AND SENSORY PHYSIOLOGY

- 1. Cerebrum: Histology, area and centers in the central context. Method of Tocalization and function; Thalamus, Hypothalamus-macheil contractions and functions.
- 2. Cerebellum- Histology, Nuclei. Connections and thereions.
- 3. Concepts of ANS- Classification, Structural and Functional organization.
- 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 ratina, accommodation, refractive errors and their corrections. Angyll Robertson pupil. Visual pathway.
- 8. Ear: Structure of external, internal and middle car. Propagation of sound waves through different parts of ear and their role in hearing. Auditory pathway.
- 9. Olfaction and gestation: Receptors involved and their mode of perception. Neural pathway for transmission.
- 10. Perkinson and Alzaimers disease.

# UNIT - X : ENDOCRINOLOGY AND REPRODUCTIVE PHYSIOLOGY

- 1. Anatomical organization of endocrine glands in the body. Chemical classification of hormones. Mode of action of hormones, signal transduction, second messcagers
- 2. Pituitary gland: Histology, function of the anterior and research pituitary hormones. Symptoms of hypo and hyper function of SVIII and ACT 1.
- 3. Thyroid, Parathyroid and Adrenal glands: Histology, Chemical nature, Mode of action and 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 and their causes; Blood sugar regulation- Role of different hormones: Glucose tolerance and their importance; Mode of action of Insulin: Role of GLU: transporters.
- 5. Regulations 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, Formones of testis and their functions.
- 8. Ovary-Histology, Oogenesis, Hormones of ovary: their function and mode of actions: Menstrual cycle and its regulation.
- 9. Concept of Fertilization. Structure of Placenta, Placental hormones and their functions. Development of three germinal layers. Pregnancy test.

#### HUMAN PER BOLDGY

# TOPG , 4th SEMIFSTER, PRACTICAL

#### PAPER-P48

#### MARKS:56

- Histological slides and models on truit and indocrine system: Study of anatomical
  position, structure and function
- Model of reproductive system: Study of reproductive system; organs in female pelvic cavity-their anatomical position, structure and function ( uterus, cervix, fallopian tube, ovary)
- 3. Histological slides on ovary, uterus, and tertish Study of Primary, Secondary, Tertiary graafian follicles, corpus interna, oocyte ap. sperm.
- 4. Models of Eye, ear, nose, skin and tengoer structure and function of different parts
- 5. Tests for detecting defects of color visical
- 6. Rinne's/Weber's test for deafness.
- 7. Romberg's sign- Vestibulat function.

#### Distribution of marks:

TOTAL MARKS: 50 Internal Assessment: 10

Internal Assessment: 10 Term end Exam : 40

2. Three experiments: 10 X 3 = 30

2. Practical Note book 65

3. Viva voce 05