UNIVERSITY OF CALCUTTA

Notification No.CSR/29/2023

It is notified for information of all concerned that in terms of the provisions of Section 54 of the Calcutta University Act, 1979, (as amended), and, in exercise of her powers under 9(6) of the said Act, the Vice-Chancellor has, by an order dated 21.08.2023 approved the new syllabus for IDC of **Physiology** under CCF in semester wise Four-year (Honours & Honours with Research and Three-year Multidisciplinary) courses of studies, as applicable under CCF,2022, under this University, as laid down in the accompanying pamphlet. IDC syllabus previously published in the University notification no. CSR/13/23,dt.12.07.2023 is replaced by this one.

The above shall take effect from the academic session 2023-2024.

28/8/2023

Prof.(Dr.) Debasis Das

Registrar

SENATE HOUSE

Kolkata-700073

The 28th , August, 2023

UNIVERSITY OF CALCUTTA

Interdisciplinary (IDC) Syllabus for Four Years B.Sc. (Honours & Honours with Research) and Three Years Multidisciplinary Courses in Studies (Under Curriculum and Credit Framework, 2022)

In

Physiology

2023

Interdisciplinary Course (IDC)					
Course Code	**Subject of the Course**	**Distribution of Credit**		**Total Credit**	**Marks**
		TH	**PR**		
PHY-IDC-TH-P01	**Theory** (Units, organization and functions of physiological system, Different biomolecules and importance of bio- physical parameters, Blood-respiration- endocrines-nerve and basic nervous system as regulator of internal systems, Applied sectors of Physiology, Patho-physiological consequences and significances of common ailments and global diseases, their causes and suggested control measures)	**02**	**00**	**02**	**50**
PHY-IDC-PR-P01	**Practical** (Hands on training to determine the basic physiological parameters e.g., Heart rate, Respiratory rate, Blood Pressure, BSA, BMI. Demonstration of different stained tissue sections)	**00**	**01**	**01**	**25**
	Total	**02**	**01**	**03**	**75**

INTERDISCIPLINARY COURSE (IDC)
Total Credit: 3 [Theory: 2, Practical: 1], Full Marks: 75

Course: Theory, Paper Code: PHY-IDC-TH-P01 [Credit: 02; Marks: 50]

Unit-I: Cells, Tissues, Systems, Organs of Human Body [10 Marks]
Cells in relation to human physiological functions, Cell organelles and their functions. Physiological system as a cluster of cells and tissues. Location and basic functions of major body-organs: Heart, Lung, Brain, Spinal cord, Liver, Stomach, Pancreas, Kidney, Digestive tract, Intestines, Sense organs, Reproductive organs[Use Models/Charts of different body organ systems & organs to observe anatomical position and structure.]

Unit-II: Biophysical and Biomolecular Phenomena [10 Marks]
Importance of major biophysical parameters in Physiology: Diffusion, Surface Tension, Absorption, Adsorption, pH, Buffer. Macro and Micronutrients and biomolecules involved in maintenance of human health: Definition with primary classifications, examples and functions of Carbohydrate, Protein, Lipids, Vitamins and enzymes.

Unit-III: Regulation and coordination of internal system [10 Marks]
Composition and functions of blood; functions of different blood cells. Composition and functions of Plasma proteins,hemoglobin molecule and anaemia. Exchange of respiratory gasses between lung and blood, and blood and tissue and their functions. Definition of hormone. Major secreting hormones and their important functions: Pituitary, Adrenal, Thyroid and Pancreas. Primary concept on Nerve fibers, Synapses, reflex action. Functional difference between central nervous system and peripheral nervous system.

Unit-IV: Applied Physiology [10 Marks]
Hematology: Definition, ABO and Rh Blood group system. Precautions of blood transfusion, Concept of Blood Bank. Microbiology and Immunology: Types of microbes, Beneficial and harmful bacteria with examples.Definition of Antigen and Antibody and Antibiotic and Vaccine with examples. Biotechnology: Outline concept and its modern applications. Basic concepts of Ergonomics and its importance in occupational health. Sports and Exercise Physiology: Physical fitness. Classification of sports, Basic concept of anthropometry. Application of statistics in biological science, Basic concept of population biology and Sample.

Unit-V: Common Diseases and Patho-physiological significance [10 Marks]:
Prevailing global communicable and non-communicable diseases, their primary causes and suggested measures: Influenza, Tuberculosis, Hepatitis, COVID-19, Diabetes mellitus, Haemophilia, Thalassaemia, COPD, Heart failure, Stroke, Hypothyroidism, Obesity, Stress.
Pathophysiological tests, their normal range in the system and indicative diseases: TC, DC, ESR, Arneth Count, Fasting and Post-prandial blood sugar tests, Glycosylated haemoglobin, Bilirubin, Urea, Uric acid, Creatinine, SGOT, SGPT, Alkaline Phosphatase, Acid Phosphatase.

DISTRIBUTION OF QUESTIONS IN PRACTICAL PAPER

1. From each unit, one question of **10 marks** each with one alternative are to be set. The **10 marks** questions may be subdivided.
2. Candidates have to **attempt all the five** questions

Course: Practical; Paper Code: PHY-IDC-PR-P01 [Credit: 01; Marks: 25]

1. Determination of Heart rate and Respiratory Rate.
2. Measurement of systolic and diastolic arterial blood pressure by sphygmomanometer and determination of pulse pressure and mean pressure.
3. Determination of Body Mass Index and Body Surface Area by using nomogram.

Demonstration:

Identification of stained sections of different mammalian tissues and organs: Liver, Kidney, Lung, Stomach, Small Intestine, Large Intestine, Pancreas, Thyroid gland, Adrenal gland, Ovary, Testis, Skin, Skeletal muscle, Cardiac muscle, Smooth muscle, Cerebellum, Ovary, Testis,

DISTRIBUTION OF QUESTIONS IN PRACTICAL PAPER

[Experiment: 15, *Viva-Voce*: 05, Laboratory Notebook: 05]