GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY

"A State University established by the Government of NCT of Delhi"

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OFFICE OF THE DIRECTOR (RESEARCH & DEVELOPMENT CELL)

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NOTICE

Sub: Regarding Ph.D. Entrance Test (PET) for Ph.D. programmes in Medical Sciences in University School of Medicine & Allied Health Sciences.

In supersession of the syllabus for Ph.D. Entrance Test (PET) given under Clause 11.10 of the Ph.D. Admission Brochure 2025-26, this is to inform all the stakeholders that only a single Ph.D. Entrance Test (PET) with Test Code 321 shall be conducted by the University for all specialities/disciplines for the Ph.D. Programme in Medical Sciences in University School of Medicine & Allied Health Sciences.

The detailed syllabus for the above mentioned PET is as follows:

Part – A Research Methodology

1. Introduction to Biostatistics
2. Overview of Data Types and Presentation
3. Measures of Disease Frequency
4. Probability and Distributions
5. Measures of Central Tendency
6. Measures of Dispersion
7. Sampling Methods (Sample size and techniques)
8. Epidemiological designs of research
9. Principles of Data Collection
10. Data Collection tools
11. Graphical and tabular representation of data
12. Hypothesis testing
13. Parametric tests
14. Non Parametric tests
15. Correlation and Regression
16. Ethical issues in biostatistics and research
17. Longitudinal data analysis - repeated measures, mixed-effect models
18. Research paper writing referencing styles
19. Basics of SPSS

Part – B (Subject Specific)

1. Cell Structure and Functions:

a. Cell theory and cell as the basic unit of life, functions of cell
b. Prokaryotic and Eukaryotic cell

c. Cell membrane and Cell wall, Transport across cell membrane
d. Cell organelles and Cytoskeleton
e. Cell cycle and cell division and its Phases
f. Mitosis, Meiosis and their significance

2. Human Physiology:

a. **Digestive system:** Parts of digestive system, Process of digestion and absorption, Common Disorders of digestive system.
b. **Respiratory system:** Parts of Respiratory system, Mechanism of breathing, Exchange and transport of gases, Respiratory volumes and capacities, Regulation of respiration, Common Disorders of Respiratory system.
c. **Body fluids and circulation:** Blood and its components, Blood grouping and related disorders, Rh incompatibility, Lymph, Circulatory system, Cardiac cycle, Electrocardiograph (ECG), Double circulation, Regulation of cardiac activity and Disorders of circulatory system.
d. **Excretory system:** Parts of Excretory system, Mechanism underlying urine formation, Parts of nephron and their respective functions, Counter current mechanism, Regulation of kidney function, Disorders of excretory system.
e. **Locomotion and movement**: Muscle (Types, structure and function), Mechanism of muscle contraction, Axial and appendicular Skeleton, Joints, Disorders of Musculoskeletal system.
f. **Nervous system:** Components of Nervous system, Structure and function of a Neuron, Nerve impulse, Parts of human brain (Forebrain, midbrain and hindbrain), Reflex action and reflex arc, Sense organs
g. **Endocrine system**: Endocrine glands (Hypothalamus, Pituitary gland, Pineal gland, Thyroid gland, Parathyroid gland, Thymus, Adrenal gland, Pancreas, Testis and Ovary), Hormones secreted by them and mechanism of their actions, Disorders related to the Endocrine system.
h. **Nutrition and Exercise**

3. Human reproduction and reproductive health:

a. Male and Female reproductive systems
b. Gametogenesis: Spermatogenesis, Oogenesis and their hormonal regulation
c. Fertilization and Implantation
d. Parturition and lactation
e. Placenta
f. Menstrual cycle
g. Problems and strategies related to Reproductive health
h. Population stabilization and birth control
i. Medical termination of pregnancy(MTP)
j. Sexually transmitted Infections
k. Infertility and Assisted reproductive technologies (ART)

4. Human Health and Diseases:

a. Basic concepts of Immunology:

i Immunity and its types: Innate, Acquired, Active and Passive
ii. Immunization-Vaccines

b. **Microorganisms causing human diseases**: Tuberculosis, Cholera, Malaria, Filariais, Ascariasis, Typhoid, Pneumonia, Common cold, Amoebiasis, Dermatophytosis, candidiasis etc.

c. **Non communicable diseases, Cancer**

d. **HIV and AIDS**

e. **Genetic disorders**

f. **Drugs and Alcohol Abuse**

g. **Common Management modalities in communicable and non- communicable diseases**

h. **National Programs of the Government of India.**

5. **Common Diagnostic testing towards diagnosis of communicable and non-communicable diseases.**

6. **Applications of biotechnology in human health and disease**

a. Biotechnology and its principles

b. Tools and Processes of Recombinant DNA technology

c. Applications of Biotechnology in Medicine

d. Gene therapy

e. Molecular diagnosis using Recombinant DNA technology, Polymerase chain reaction (PCR) and Enzyme Linked Immuno -sorbent Assay (ELISA)

This issues with the approval of the Competent Authority.

24/3/25

(Prof. Nimisha Sharma)
Director, RDC

Copy to:-

1. Controller of Examination-II
2. Director, Academic Affairs.
3. Director, Incharge, Academic Branch.
4. Dean, USM&AHS
5. AR, VC Secretariat, for kind information of Hon'ble Vice Chancellor.
6. AR, Registrar Secretariat, for kind information of Registrar.
7. Head, UITS with the request to upload the same on the university website, Notice Section of Admission Branch and Notice & Circular section of RDC.
8. NIC for uploading on https://ipu.admissions.nic.in
9. Guard File.

(Dr. Zubair Ahmed Khan)
Associate Director (RDC)