RUHS Ph.D. ADMISSION TEST 2019

SYLLABUS PAPER-1

Teaching Aptitude
Teaching: Nature, objective, characteristics and basic requirements;
Learner’s characteristics;
Factor affecting teaching;
Teaching aids;
Evaluation system;

Research Aptitude
Research: Meaning, characteristics and types;
Steps of research
Methods of research
Research Ethics
Paper, article, workshop, seminar, conference and symposium
Thesis writing: its characteristics and format

Reading Comprehension
A passage to be set with questions to be answered

Communication
Communication: Nature, characteristics, types, barriers and effective classroom communication.

Reasoning (Including Mathematical)
Number series; letter series; codes;
Relationship; classification

Logical Reasoning
Understanding the structure of arguments;
Evaluation and distinguishing deductive and inductive reasoning;
Verbal analogies: Word analogy- Applied analogy;
Verbal classification
Reasoning Logical Diagram: simple diagrammatic relationship, multi diagrammatic relationship;
Venn diagram; Analytical Reasoning.

Data Interpretation
Sources, acquisition and interpretation of data;
Quantitative and qualitative data;
Graphical representation and mapping of data;

Information and Communication Technology (ICT)
ICT: meaning, advantages, disadvantages and uses;
General abbreviation and terminology;
Basics of internet and e-mailing

Note: Each section gets almost equal weightage: about six questions from each section.
SYLLABUS PAPER-2

Faculty of Medicine

Microbiology
Applied Medical sciences viz. Epidemicology and Pathology of infections, diseases related Haematology and Medicine.
General & Systemic Bacteriology.
Mycology, Protozoology and Helminthology.
Immunology including blood banking and Virology.

Pharmacology
General Pharmacology, mechanism & drug action
Pharmacology of ANS, CNS, CVS, Gastro intestinal system, endocrine system, Autacoids, NSAIDs, Vitamins, Hormones, Anti-coagulants, Antithrombolytics, Thrombolytics, Haematinics, Diuretics; Drugs acting on respiratory system; Drug therapy of infectious diseases including chemotherapy of malaria and cancer
Experimental pharmacology, bioassay
Recent advances in biochemical pharmacology & history

Anatomy
Human Anatomy including Neuro Anatomy.
Development Anatomy. Recent Advances and History of Anatomy.
Comparative Anatomy and Evolution.

1. Introduction: Animal cell, General Consideration of bone and cartilage, articulations and muscles.
3. Osteology: General idea of all the bones of human skeleton.
10. Ductless Glands: Gross anatomy of all the ductless glands.
11. Dissection: Dissection and study of the dissected parts to supplement the theoretical knowledge.
12. Histology: Study of the histological structure of the various tissues of the body.

Physiology
Bio-Physics and Bio-Chemistry and Physiology (Including Histology) of Muscles, Nerves, Circulation and Respiration.
Physiology (Including Histology) except subjects included in the First Paper.

1. Fundamental phenomenon of life, cells, tissues and organization of body.
5. Digestive system: Balanced diet, food, nutrition, Vitamins, various secretions of the digestive tracts, their functions, movements of the alimentary canal and absorption.
8. Special Senses: Physiology of vision, hearing, taste and smell.

Biochemistry
Bio-Chemistry of Metabolism.
Vitamins, Hormones and Nutrition.
Genetics and Molecular biology

BIO-CHEMISTRY OF METABOLISM:
Intermediary metabolism of carbohydrates, Lipids and Proteins and their Inter-relationships, Biological Oxidations, Metabolism of purines and pyrimidines, nucleic acids, Nucleoproteins, Mineral Metabolism. Inborn errors of metabolism.

VITAMINS, HORMONES AND NUTRITION:

GENETICS AND MOLECULAR BIOLOGY:
1. The structure and Function of Proteins.
   I. Introduction.
   II. Classification of proteins.
   III. General structure of proteins.
      (A) Amino acids.
      (B) The peptide bond.
      (C) Primary structure.
      (D) Protein conformation.
      (E) Quantenary structure.
      (F) Isozymes.
      (G) Multi-enzyme complexes.
   IV. General properties of proteins.
      (A) Proteins and ampholytes.
      (B) Molecular weights.
      (C) Proteins as antigens.
   V. Effect of mutation.
      (A) Protein structure.
      (B) Protein properties.
2. Genes, Proteins and the Control of Gene Expression
   I. Introduction.
      (A) Genotype and phenotype.
      (B) The gene.
      (C) Mutation.
      (D) Complementation.
   II. Some established aspects of genetic regulation.
      (A) The opron.
      (B) Bacteriophage Lambda.
      (C) Translational control in RNA bacteriophage.
      (D) Autogenous regulation.
   III. Genetic regulation of Mammalian protein.
      (A) Regulatory aspects of inborn errors.
      (B) Expression of specialized proteins in differentiated cells.
      (C) The induction of protein synthesis by hormones.
   IV. Genetic regulation and development.
      (A) Hierarchies of control.
      (B) Chromosomal proteins.
      (C) Models of genetic regulation.
   V. Expression of the differentiated phenotype in vitro.
      (A) Analysis of differentiation in culture tumour by cell fusion.
      (B) Mechanism of extinction re-expression of luxury functions in hybrids.
      (C) Analysis of malignancy.
      (D) Taratomas.
   VI. Antibody biosynthesis and the generation of antibody diversity.
(A) Antibody biosynthesis.
(B) The problem of antibody diversity.
(C) VE markers in the rabbit and mouse.
(D) A gene stitching model.
(E) Somatic mutation.

VII. Gene clusters in eukaryotes.
VIII. Inserted sequences in structural genes.
IX. Conclusion.

3. Chromosomes and Protein Variation.
   I. Introduction.
   II. The human chromosomes.
      (A) Identification and linear differentiation.
      (B) Variability.
      (C) Variability and linear differentiation.
      (D) Human BHA and the number of genes in man.
   III. Mapping.
   IV. Protein studies in chromosomal disorders.
      (A) Studies of the products of localized.
      (B) Further biochemical studies in autosoma anomalies.
      (C) Discussion.
      (D) Expression of gonosomal genes.
      (E) Aneuploidy and the cell cycle.
   V. Nuclear organization.
   VI. New trends in the analysis of human genome.

4. Polymorphism, Selection and Evolution.
   I. Introduction.
   II. Selection.
      (A) Theoretical considerations.
      (B) Selection in human populations.
   III. Evolution.
      (A) Gene flow and anthropology.
      (B) General considerations and conclusions.

5. Enzyme Polymorphism.
   I. Introduction.
   II. Polymorphic enzyme systems.
   III. An attempt at a syntheses.

   I. Introduction and scope of chapter.
   II. Techniques for recognizing inherited variation in proteins.
      (A) Gel electrophoresis.
      (B) Immunological techniques.
   III. Polymorphism.
      (A) Established and high probable polymorphisms.
      (B) Some possible polymorphisms.
   IV. Rare Variations.
   V. Comparative summary of polymorphisms prospects for further investigation.

7. Inborn Errors of metabolism.
   I. Introduction.
   II. Molecular concepts.
      (A) Structural and control genes.
      (B) Dominance and recessiveness.
   III. Experimental approach.
      (A) General considerations.
      (B) Indirect approach.
      (C) Direct approach.
   IV. Tissue distribution.
   V. Heterogenity.
      (A) Non allergic genes.
      (B) Allergic genes.
   VI. Heterozygote detection.
      (A) Autosomal recessive transmission.
      (B) X-linked recessive transmission
   VII. Prenatal detection.
      (A) Techniques.
      (B) Results.
      (C) Future prospects.
   VIII. Classification of inborn errors of metabolism.

8. The Immunoglobulinopathies.
   I. Introduction.
II. The immunoglobulins.
   (A) General introduction
   (B) Immunoglobulin genetic markers (Allotypes) in man.
   (C) The immunogenetics basis for antibody diversity.
   (D) Genetics of the immune response.
   (E) Biosynthesis and metabolism of immunoglobulins.
   (F) Development of immunoglobulins before and after parturition.
III. The immunoglobulinopathies.
   (A) Classification and definition of terms.
   (B) Hyperimmunoglobulinaemia.
   (C) The paraimmunoglobulinopathies.
   (D) Hypoimmunoglobulinopathies.

Syllabus for the following shall be that of MD/MS course of RUHS.

Anaesthesia

General Medicine

Endocrinology

Neurology

Obst. & Gynaecology

Ophthalmology

Orthopaedics

Paediatrics

Skin & V.D

Pathology

Respiratory disease (T.B.& Chest)

Preventive & Social Medicine

Forensic Medicine
Faculty of Pharmacy

Pharmaceutics
Methods in pharmaceutical research, product development, biotechnology & genetics, novel drug delivery techniques, biopharmaceutics & pharmacokinetics, standardization & stabilization methods, total quality management.

Pharm. Chemistry
Chemistry of natural & synthetic compounds, drug discovery & development, organic reactions- mechanisms & stereochemistry, pharmaceutical analysis of drugs, total quality management

Pharmacognosy
Extraction, isolation and characterization of bioactive phytoconstituents, Plant tissue culture, history and development of taxonomy and chemotaxonomy, Principle of classification. Rules of plant nomenclature, Quantitative microscopy as applied to drug evaluation, Study of plants, plant products and screening of natural products for biological activities, Herbs as Health food, aromatherapy and plants used in alternative system of medicines.