

RAJASTHAN UNIVERSITY OF HEALTH SCIENCES

Kumbha Marg, Sector-18, Pratap Nagar, Tonk Road, Jaipur -302033
Phone: 0141-2795527 | Website: www.ruhsraj.org

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. Epidemiology 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, Antithrombotics, 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.
2. Embryology: General embryology- Spermatogenesis and genesis, heredity and Human Genetics, Fertilisation and Segmentation of Ovum. Foetal membranes and placenta. Development of individual system.
3. Osteology: General idea of all the bones of human skeleton.
4. Extrimities: A gross study of muscles: blood vessels, nerves and joints.
5. Thorax: Intercostal spaces, Pleura. JPericardium and contents, Mediastinum and contents, Diaphragm, Mechanism of respiration, Applied considerations.
6. Abdomen: Anterolateral abdominal wall with its applied importance. Abdominal cavity- its contents organs, vessels, nerves and lymphatics. Autonomic nervous system, Perineum-Male and female pelvis, its contents and its applied considerations.
7. Head and Neck: Study of the skull as a whole, orbital cavity and contents, salivary glands, blood vessels, cranial nerves, Gross study of Pharynx, Larynx, nasal cavity and ear.
8. Central nervous system: Spinal cord-Tracts, coverings and blood supply, Medulla oblongata, Pons, Cerebellum, Midbrain and its internal structure, functional significance and connections. Third, Fourth and lateral ventricles. Forebrain-Internal structure functional significance and connections. Choroid plexus, Covering and blood supply of brain. Chief nerve tracts-Pyramidal and extra Pyramidal systems.
9. Autonomic nervous system: Parasympathetic and sympathetic system.
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.**
Comparative Animal Physiology and History of Physiology, Genetics and Principles of Bio-statistics.

1. Fundamental phenomenon of life, cells, tissues and organization of body.
2. Blood – its composition and functions, blood volume, plasma proteins and its functions, coagulation of blood, Blood groups. Transfusions, haemorrhage and shock, Origin of blood cells, Bone marrow, Haemoglobin and its derivatives.
3. Cardiovascular system: Properties of cardiac muscle, origin and initiation of heart beat, Cardiac Cycle, Cardiac out-put, heart sounds, Regulation of the heart, general scheme of circulation. Blood pressure, Vasomotor control and Regional circulations.
4. Respiratory system: Mechanics of respiration, Uptake of Oxygen, caebondioxide carriage, Anoxia and Regulations of respiration.
5. Digestive system: Balanced diet, food, nutrition, Vitamins, various secretions of the digestive tracts, their functions, movements of the alimentary canal and obsorbtion.

6. Excretory system: Structure of kidney, formation of urine, Physiology of Micturation, body temperature regulation. Structure and functions of skin, Body fluids and their regulation.
7. Nervous System: General features of the nervous system, structure and functions of spinal cord, Posture and Equilibrium, Functions of brain system, Corpus Strirum, thalamus, hypothalamus, functions and connections of Cerebellum and Cerebrum, Autonomic Nervous System, Cerebo Spinal Fluid.
8. Special Senses: Physiology of vision, hearing, taste and smell.
9. Endocrines and Reproduction: Physiology of various endocrine glands, male and female sex hormones, menstruation, ovulation and physiology of pregnancy.
10. Muscles and Nerves: Structure, chemistry of muscular contraction.

Biochemistry

Bio-Chemistry of Metabolism.

Vitamins, Hormones and Nutrition.

Genetics and Molecularbiology

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:

Chemistry and Functions of Vitamins and Hormones; Bio-chemistry of blood clotting and respiration. Acid base balance, Muscle contraction. Minerals and their role in nutrition. Nutrition in Health and Disease. Detoxication, Chemical structure and biological activity of antibiotics. Nitrogen fixation. Fermentation.

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. Genaral 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 autosomal 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 synthesis.
6. Inherited variation in Plasma Proteins.
- 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 highly 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. Heterogeneity.
 - (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.