

M.D. AYURVEDA

PRELIMINARY PAPER-I  
RESEARCH METHODOLOGY AND MEDICAL STATISTICS

**PART-A**  
**RESEARCH METHODOLOGY**

- 1 Introduction to Research**
  - A. Definition of the term research
  - B. Definition of the term anusandhan
  - C. Need of research in the field of Ayurveda
  
- 2 General guidelines and steps in the research process**
  - A. Selection of the research problem
  - B. Literature review: different methods (including computer database) with their advantages and limitations
  - C. Defining research problem and formulation of hypothesis
  - D. Defining general and specific objectives
  - E. Research design: observational and interventional, descriptive and analytical, preclinical and clinical, qualitative and quantitative
  - F. Sample design
  - G. Collection of the data
  - H. Analysis of data.
  - I. Generalization and interpretation, evaluation and assessment of hypothesis.
  - J. Ethical aspects related to human and animal experimentation.
  - K. Information about Institutional Ethics Committee (IEC) and Animal Ethics Committee (AEC) and their functions. Procedure to obtain clearance from respective committees, including filling up of the consent forms and information sheets and publication ethics.
  
- 3 Preparation of research proposals in different disciplines for submission to funding agencies taking EMR-AYUSH scheme as a model.**
  
- 4. Scientific writing and publication skills.**
  - a. Familiarization with publication guidelines- Journal specific and CONSORT guidelines.
  - b. Different types of referencing and bibliography.
  - c. Thesis/Dissertation: contents and structure
  - d. Research articles structuring: Introduction, Methods, Results and Discussions (IMRAD)
  
- 5 Classical Methods of Research. Tadvidya sambhasha, vadmarga and tantrayukti**  
Concept of Pratyakshadi Pramana Pariksha, their types and application for Research in Ayurveda.

Dravya-, Guna-, Karma-Parikshana Paddhati  
Aushadhi-yog Parikshana Paddhati  
Swastha, Atura Pariksha Paddhati  
Dashvidha Parikshya Bhava  
Tadvidya sambhasha, vadmarga and tantrayukti

**6 Comparison between methods of research in Ayurveda (Pratigya, Hetu, Udaharana, Upanaya, Nigaman) and contemporary methods in health sciences.**

**7. Different fields of Research in Ayurveda**

- a. Fundamental research on concepts of Ayurveda
- b. Panchamahabhuta and tridosha.
- c. Concepts of rasa, guna, virya, vipak, prabhav and karma
- d. Concept of prakriti-saradi bhava, ojas, srotas, agni, aam and koshta.

**8. Literary Research-**

Introduction to manuscriptology: Definition and scope. Collection, conservation, cataloguing.

Data mining techniques, searching methods for new literature; search of new concepts in the available literature. Methods for searching internal and external evidences about authors, concepts and development of particular body of knowledge.

**9. Drug Research (Laboratory-based)-** Basic knowledge of the following:

**Drug sources:** plant, animal and mineral. Methods of drug identification.

**Quality control and standardization aspects:** Basic knowledge of Pharmacopoeial standards and parameters set by Ayurvedic Pharmacopoeia of India.

Information on WHO guidelines for standardization of herbal preparations. Good Manufacturing Practices(GMP) and Good Laboratory Practices (GLP).

**10. Safety aspects:** Protocols for assessing acute, sub-acute and chronic toxicity studies. Familiarization with AYUSH guidelines (Rule 170), CDCSO and OECD guidelines.

**11. Introduction to latest Trends in Drug Discovery and Drug Development**

-Brief information on the traditional drug discovery process

-Brief information on the latest trends in the Drug Discovery process through employment of rational approach techniques; anti-sense approach, use of micro and macro-arrays, cell culture based assays, use of concepts of systems biology and network physiology

-Brief introduction to the process of Drug development

**12. Clinical research:**

Introduction to Clinical Research Methodology identifying the priority areas of Ayurveda

Basic knowledge of the following:-

Observational and Interventional studies

Descriptive & Analytical studies

Longitudinal & Cross sectional studies

Prospective & Retrospectives studies

Cohort studies

Randomized Controlled Trials (RCT) & their types  
Single-case design, case control studies, ethnographic studies, black box design, cross-over design, factorial design.

Errors and bias in research.

New concepts in clinical trial- Adaptive clinical trials/ Good clinical practices (GCP)

Phases of Clinical studies: 0,1,2,3, and 4.

**Survey studies -**

Methodology, types, utility and analysis of Qualitative Research methods. Concepts of in-depth interview and Focus Group

Discussion.

**13.** Pharmacovigilance for ASU drugs. Need, scope and aims & objectives. National Pharmacovigilance Programme for ASU drugs.

**14.** Introduction to bioinformatics, scope of bioinformatics, role of computers in biology. Introduction to Database- Pub med, Medlar and Scopus. Accession of databases.

**15.** Intellectual Property Rights- Different aspect and steps in patenting. Information on Traditional Knowledge Digital Library (TKDL).

**PART-B**

**40 marks**

**MEDICAL STATISTICS**

**Teaching hours: 80**

**1 Definition of Statistics :** Concepts, relevance and general applications of Biostatistics in Ayurveda

Collection, classification, presentation, analysis and interpretation of data  
(Definition, utility and methods)

**2 Scales of Measurements** - nominal, ordinal, interval and ratio scales.

**Types of variables** – Continuous, discrete, dependent and independent variables.

**Type of series** – Simple, Continuous and Discrete

**3 Measures of Central tendency** – Mean, Median and Mode.

**4 Variability:** Types and measures of variability – Range, Quartile deviation, Percentile, Mean deviation and Standard deviation

**5 Probability:** Definitions, types and laws of probability,

**6 Normal distribution:** Concept and Properties, Sampling distribution, Standard Error, Confidence Interval and its application in interpretation of results and normal probability curve.

**7 Fundamentals of testing of hypotheses:**

Null and alternate hypotheses, type I and type 2 errors.

Tests of significance: Parametric and Non-Parametric tests, level of significance and power of the test, 'P' value and its interpretation, statistical significance and clinical significance

**8 Univariate analysis of categorical data:**

Confidence interval of incidence and prevalence, Odds ratio, relative risk and Risk difference, and their confidence intervals

**9 Parametric tests:**

‘Z’ test, Student’s ‘t’ test: paired and unpaired, ‘F’ test, Analysis of variance (ANOVA) test, repeated measures analysis of variance

**10 Non parametric methods:**

Chi-square test, Fisher’s exact test, McNemar’s test, Wilcoxon test, Mann-Whitney U test, Kruskal – Wallis with relevant post hoc tests (Dunn)

**11 Correlation and regression analysis:**

Concept, properties, computation and applications of correlation, Simple linear correlation, Karl Pearson’s correlation co-efficient, Spearman’s rank correlation.  
Regression- simple and multiple.

**12 Sampling and Sample size computation for Ayurvedic research:**

Population and sample. Advantages of sampling, Random (Probability) and non random (Non- probability) sampling. Merits of random sampling. Random sampling methods- simple random, stratified, systematic, cluster and multiphase sampling. Concept, logic and requirement of sample size computation, computation of sample size for comparing two means, two proportions, estimating mean and proportions.

**13 Vital statistics and Demography:**

computation and applications - Rate, Ratio, Proportion, Mortality and fertility rates, Attack rate and hospital-related statistics

**14 Familiarization with the use of Statistical software like SPSS/Graph Pad**

**PRACTICAL**

**100 marks**

**I. RESEARCH METHODOLOGY**

**Teaching hours 120**

**PRACTICAL NAME**

**1 Pharmaceutical Chemistry**

Familiarization and demonstration of common lab instruments for carrying out analysis as per API

**2 Awareness of Chromatographic Techniques**

Demonstration or Video clips of following:

- Thin-layer chromatography (TLC).
- Column chromatography (CC).
- Flash chromatography (FC)
- High-performance thin-layer chromatography (HPTLC)
- High Performance (Pressure) Liquid Chromatography (HPLC)
- Gas Chromatography (GC, GLC)

**4 Pharmacognosy**

Familiarization and Demonstration of different techniques related to:-Drug administration techniques- oral and parenteral.

Blood collection by orbital plexuses puncturing.

Techniques of anesthesia and euthanasia.

Information about different types of laboratory animals used in experimental research  
Drug identification as per API including organoleptic evaluation

**5 Pharmacology and toxicology**

Familiarization and demonstration of techniques related to pharmacology and toxicology

**6 Biochemistry (Clinical)**

Familiarization and demonstration of techniques related to basic instruments used in a clinical biochemistry laboratory – semi and fully automated clinical analyzers, electrolyte analyzer, ELISA-techniques, nephelometry.

Demonstration of blood sugar estimation, lipid profiles, kidney function test, liver function test. HbA1, cystatin and microalbumin estimation by nephelometry or other suitable techniques. Interpretation of the results obtained in the light of the data on normal values.

**7 Clinical Pathology**

Familiarization and demonstration of techniques related to basic and advanced instruments used in a basic clinical pathology lab. Auto cell counter, urine analyzer, ESR, microscopic examination of urine.

**8 Imaging Sciences**

Familiarization and demonstration of techniques related to the imaging techniques. Video film demonstration of CT-Scan, MRI-scan and PET-scan.

**9 Clinical protocol development**

**II. MEDICAL STATISTICS**

**Practical hours:20**

Statistical exercise of examples from Topic number 4, 5, 8-12, 14, 15. Records to be prepared.

**Distribution of marks (practical):**

1. Instrumental spotting test– 20 marks
2. Clinical protocol writing exercise on a given problem– 20 marks
3. Records:Research methodology -10 Mark
4. Medical statistics -10 marks
5. Viva- Voce -40 Marks

**REFERENCE BOOKS:-**

**Pharmacognosy:**

1. Aushotosh Kar “Pharmacognosy & Pharmacobiotechnology” New Age International Publisher. Latest Edition. New Delhi.
2. Drug Survey by Mayaram Uniyal
3. Fahn A (1981). Plant Anatomy 3rd Edition Pergamon Press, Oxford
4. Kokate, CK., Purohit, AP, Gokhale, SB (2010). Pharmacognosy. Nirali Prakashan. Pune.
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8. Tyler VE Jr and Schwarting AE., Experimental Pharmacognosy, Burgess Pub. Co, Minneapolis, Minnesota.
9. Wallis- TE (2011)- reprint. Practical Pharmacognosy (Fourth Edition) Pharma Med Press, Hyderabad.
10. Wallis T E, Analytical Microscopy, J & A Churchill limited, London.
11. Wallis T E., Text Book of Pharmacognosy, J & A Churchill Limited, London.
12. WHO guidelines on good agricultural and collection practices- (GACP) for medicinal plants (2003). World Health Organization- Geneva.
13. WHO monographs on selected medicinal plants (1999)—Vol. 1. 1.Plants, Medicinal 2.Herbs 3.Traditional medicine. ISBN 92 4 154517 8. WHO Geneva.

**Pharmaceutical chemistry, quality control and drug standardization:**

1. Ayurvedic Pharmacopoeia of India. Part I- volume 1 to 8 and Part II- volume 1 to 3. Ministry of Health and Family Welfare. Controller of Publication. Govt of India. New Delhi.
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3. Galen Wood Ewing (1985). Instrumental Methods of Chemical Analysis. McGraw-Hill College ;Fifth edition
4. Harborne, JB (1973). Phytochemistry Methods. Chapman and Hall, International Edition, London.
5. HPTLC- Fingerprint atlas of Ayurvedic Single Plant Drugs mentioned in Ayurvedic Pharmacopoeia Vol- III and IV. CENTRAL COUNCIL FOR RESEARCH IN AYURVEDA AND SIDDHA. New Delhi.
6. Kapoor, RC (2010). Some observations on the metal based preparations in Indian System of Medicine. Indian Journal of Traditional Knowledge. 9(3): 562-575
7. Khopkar, S. M. Analytical Chemistry, New Age International Publishers , 3 rd edition
8. Laboratory Guide for- The Analysis of Ayurved and Siddha Formulations – CCRAS, New Delhi.
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11. Quality Control Methods for Medicinal Plant Material. Reprint (2002). WHO- Geneva.
12. Rangari V.D., Pharmacognosy & Phytochemistry, Vol I, II, Career Publication,
13. Sharma BK. Instrumental Methods of Chemical Analysis by, Goel Publishing House.
14. Srivastav VK and Shrivastav KK. Introduction to Chromatography (Theory and Practice)
15. Stahl E., Thin Layer Chromatography - A Laboratory Handbook, Springer Verlag, Berlin.
16. Sukhdev Swami Handa, Suman Preet Singh Khanuja, Gennaro Longo and Dev Dutt Rakesh (2008).Extraction Technologies for Medicinal and Aromatic Plants -INTERNATIONAL CENTRE FOR SCIENCE AND HIGH TECHNOLOGY- Trieste,

**Biochemistry and Laboratory techniques:**

1. Asokan P. (2003) Analytical Biochemistry, China publications,
2. Campbell, P.N and A.D .Smith, Biochemistry Illustrated, 4th ed, Churchill Livingstone.
3. David Frifelder. W. H. Freeman. (1982). Physical Biochemistry by; 2 edition

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6. Harold Varley. Practical Clinical Bio-chemistry
7. Kanai L.Mukherjee. Clinical Pathology:;Medical Laboratory Technology Vol. I.Tata McGrawHill1996, New Delhi.
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12. Text book of Radiology and Imaging, Vol-1, David Sultan, 7th Edition. 2003.

**Research methodology:**

1. Alley, Michael. The craft of scientific writing. Englewood Cliffs. N.N. Prentice 1987.
2. Ayurvediya Anusandhan Paddhati – P.V. Sharma
3. Altick and Fenstermaker. ( 2007).*The Art of Literary Research*. 4th ed. W. W. Norton. Castle,Gregory. *Blackwell Guide to Literary Theory*. Blackwells,
4. Bowling, A. (2002). Research Methods in Health (2nd ed). Buckingham: Open University Press.
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12. Relevant portions of Ayurvedic Samhitas and other texts

**Drug research and development:**

1. RICK NG, (2009). DRUGS- from discovery to approval. John Wiley & Sons, Inc., Hoboken, NewJersey
2. Research guidelines for evaluating the safety and efficacy of herbal medicines. (1993). . WHO- (Regional Office for the Western Pacific – Manila) ISBN 92 9061 110 3 (NLM Classification: WB925).
3. Jagdeesh, Sreekant Murthy, Gupta, YK and Amitabh Prakash Eds. Biomedical Research (FromIdeation to Publication) (2010). Wolters Kluwer/ Lippincott Williams and Wilkins.
4. WHO Guidelines on Safety Monitoring of herbal medicines in pharmacovigilance systems. (2004).WHO- Geneva. ISBN 92 4 1592214.
5. Natural products isolation. (2006) 2nd ed. / edited by Satyajit D. Sarker, Zahid Latif, Alexander I.Gray. (Methods in biotechnology; 20). Includes bibliographical references and

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6. Gazette Extraordinary Part- II-Section 3 - Sub section (i) December 2008. Govt of India. AYUSH Guidelines on safety studies- Rule 170 of Drugs and Cosmetics Act.
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8. OECD Guideline for the Testing of Chemicals – Repeated Dose 90-day Oral Toxicity Study in Rodents, 408, 1998. <http://browse.oecdbookshop.org/oecd/pdfs/free/9740801e.pdf> (latest version)
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#### **Biotechnology and Bio-informatics:**

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2. Bergeron BP 2002 Bioinformatics Computing 1st Edition, Prentice Hall
3. Chikhale, N.J. and Virendra Gomase, Bioinformatics- Theory and Practice, Publisher: Himalaya Publication House, India; 1 edition (July, 2007) ISBN-13: 978-81-8318-831-9
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10. [www.consort-statement.org](http://www.consort-statement.org)
11. [www.strobe-statement.org](http://www.strobe-statement.org)
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2. Ethical Guidelines for Biomedical Research on Human subjects. (2000). Indian Council of Medical Research- New Delhi.
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**Medical Statistics:**

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2. Armitage P, Berry G, Matthews JNS: *Statistical Methods in Medical Research*. Fourth edition. Oxford, Blackwell Science Ltd; 2002
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15. Suhas Kumar Shetty- Medical statistics made easy

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**M.D.-AYURVEDA PRELIMINARY  
ROGA NIDANA AVUM VIKRITI VIGYAN (Pathology and Diagnostic Procedure)  
PAPER-II**

Theory 100 marks

**PART-A 50 marks**

1. Understanding of Samprapti of diseases in Charaka Nidana Sthana in contemporary context
2. Clinical aspects of Dosha, Dhatu, Upadhatu, Mala, Agni, Ama, Srotas and Indriya
3. Understanding of the role of Trividha Avasthapaka in the vitiation of Dosha
4. Concept of Nanatmaja and Samanyaja Vikara
5. Clinical application of Avarana in diagnosis of various diseases
6. Clinical application of Shatkriyakala in diagnosis of diseases.
7. Clinical and applied aspects of concept of Upadrava and Arista

**PART-B 50 marks**

1. Ayurvedic interpretation of various laboratory investigations to derive treatment principles.
2. Interpretation of various Rogi Bala and Roga Bala technique to plan Chikitsa Sutra
3. Clinical examination of Deha Bala, Roga Bala, Agnibala And Chetas Bala
4. Knowledge of current diagnostic tools like ECG, X-Ray, CT scan, MRI and USG

**PRACTICAL 100 marks**

Contents:

1. Duty in hospital OPD and IPD.
2. Duty in pathology laboratory.
3. Case taking – 25 cases
4. Performance of pathology and biochemistry practicals – 10 cases
5. Interpretation of ECG, EEG, X-ray, CT-Scan, MRI and USG

**Distribution of marks (Practical)**

1. Case record (25 Cases) - 10 marks
2. Bed side clinical case taking
3. Long case - 20 Marks
4. Short case - 10 Marks
5. Laboratory Practicals - 20 Marks
6. Interpretation of ECG, EEG, X-ray, CT-Scan, MRI and USG– 10 Marks
7. laboratory experiment record - 10 marks
8. Viva-voce - 20 Marks

**REFERENCE BOOKS:**

1. Madhav Nidan (Madhukosha Commentary)
  2. Relevant portions of Charak Samhita, Sushrut Samhita and Vagbhata
  3. Doshakaranatwa Mimamsa - Acharya P.V. Sharma
  4. Nadi pariksha - Vb Athavale
  5. Nadi Pariksha – - GP Upadhyay
  6. Rogi Pariksha vidhi - Acharya Priyavrata Sharma
  7. Nidan Panchak - Shivcharan Dhyanani
  8. Vyadhivigyan I and II - Yadav Thrikamji
  9. Ayurvediya Roga Vargikaran - Vd. Ramanat Vd. Gurdip Singh
  10. Ayurvediya Nidan Evum Chikitsa Ke Siddhanta - Prof. Ram Harsh Singh
  11. Clinical methods in Ayurveda - K. R . S. Murthy
  12. Parameswarappa's Ayurvediya Vikriti Vigyan & Roga Vikriti Vigyan - Dr. P.S. Byadgi.
  13. Oxford Handbook of Clinical Examination and Practical Skills
  14. Symptoms & Signs in Clinical Medicine - Chamberlains
  15. Hutchison's Clinical Methods
  16. Bedside Clinics in Medicine Part- I & II - Kundu
  17. Practical Pathology - Dr. K. Uma Chaturvedi
  18. Medical Laboratory Technology - R. Sood
  19. Clinical Diagnosis and Management by Laboratory methods - Todd, Sanford and Davidson
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**M.D.-AYURVEDA FINAL**

**ROGA NIDANA**

**PAPER- I FUNDAMENTAL PRINCIPLES OF ROGANIDANA**

Concept of Tridosha and its Pathological implications. 63 permutations and combination of Tridosha. Lina and Stambhita Dosha, their cause and importance in manifestation of Samprapti

Concept of Rakta as a Chaturtha Dosha. Importance of Rakta in the manifestation of diseases.

Concept of Ashrayashrayi bhava and its applied utility.

Different types of Dosha Gati.

Causative factors and practical utility of movement of Doshas from Kostha to Shakha and Shakha to Koshtha. Concept of Ashayapakarsha.

Trayo roga marga, their diseases and clinical importance of Roga Marga.

Concept and classification of Avarana, its role in pathogenesis, mode of diagnosis of Avarana and its importance in chikitsa sutra.

Applied aspect of Dhatu Poshana Krama and Dhatu Samvahana. Concept of Margaga and Sthanastha Dhatus.

Concept and applied aspects of Doshapaka and Dhatupaka

Fundamental and applied aspect of Dhatu, Upadhatu and Mala. Diseases developed due to their vitiation (pradoshaja vikara).

Concept and applied aspects of Srotas, their importance in health and diseased conditions.

Concept and applied aspects of Sroto Dushti and Khavaigunya. Understanding the various srotas which are not included in classical list of srotas but enumerated while describing the samprapti of diseases.

Description of Dosha-Dushya-Sammurchhana, Concept of Prakriti Sama Samaveta and Vikriti Vishama Samaveta Sammurchhana. Importance of Dosha-Dushya-Sammurchhana in Diagnosis and treatment.

Concept of Vikara vighata bhavabhava prativisesha.

Concept of Agni and its role in manifestation of health and disease.

Concept and pathogenesis of Ama. Contemporary interpretation of Ama and its role in pathogenesis.

Sama, Nirama stages of Dosha, Dhatu and Mala.

Understanding Samprapti of Santarpanottha and Apatarpanottha Vyadhi

Detailed classification of diseases as described in Ayurveda. Knowledge of ICD and DSM classification.

Detailed understanding of Nidan Panchaka with their classification and clinical importance.

Relation between 'Hetu & Lakshana' and 'Samprapti & Lakshna'.

Explanation and applied aspects of Kriyakala and its utility in diagnosis and treatment.

Importance of Upadrava, Arishta and Sadhyasadyata and Udarka.

Natural History of the Diseases, concept of vyadhisankara in Ayurveda.

**PAPER – II ROGA VIGYANA**

Knowledge of classical Samprapti of following diseases with interpretation of Nidana Panchaka including Upadrava, Arishta and Sadhyasadyata and Chikitsa Sutra. Knowledge of commonly occurring diseases of the respective systems mentioned in contemporary medicine and their Ayurvedic interpretation.

1. Diseases of Pranavaha srotas- Kasa - Shwasa - Hikka – Urahkshata – Shosha – Rajyakshma and Ayurvedic understanding of common clinical entities like Pneumonia, Pleural effusion, Bronchitis, Bronchiectasis, Pulmonary Tuberculosis, Bronchial Asthma.
2. Diseases of Annavaha- Pureeshavaha Srotas- Agnimandya - Ajirna - Aruchi- Chhardi, Amlapitta- Shoola, Grahani –Gulma- Udara Roga –Vibandha, Atisara – Pravahika along PG Final Year Syllabus-33 with various clinical presentations. Ayurvedic understanding of common clinical entities like Peptic Ulcer, Irritable Bowel Syndrome, Diarrhoea, Dysentery, Constipation, ulcerative colitis.
3. Diseases of Udakavaha Srotas- Trishna, Daha and knowledge of water and electrolyte imbalance disorders
4. Diseases of Rasavaha Srotas - jwara and Ayurvedic understanding of common clinical entities like various types of Fever- Malaria, Typhoid, viral fevers. Pandu, Amavata, Hridroga, Shotha and Ayurvedic understanding of common clinical entities like Anaemia & its Classification, Rheumatic fever, Rheumatoid Arthritis, Angina, Ischaemic Heart Disease, Hypertension, Myocardial Infarction ,Congestive cardiac failure.
5. Diseases of Raktavaha Srotas- Kamala - Raktapitta - Vatarakta – Kroshtukaseersha - Shitapitta – Maha Kushta – Visarpa – Shwitra and Kshudra Kushta and Ayurvedic understanding of common clinical entities like jaundice, hepatitis, bleeding disorders, Gout, Thrombo Angitis Obliterans (TAO), Deep Vein Thrombosis (DVT), Leukaemia, Thalessemia, Sickle cell Anaemia. Introduction to Urticaria, Psoriasis, Eczema, Pemphigus, Herpes.
6. Diseases of Mamsavaha srotas- Introduction to Granthi, Arbuda, Galaganda and Arsha. Ayurvedic understanding of all types neoplasia and Thyroid diseases.
7. Diseases of Medovaha srotas- Sthoulya - Karshya – Prameha and Ayurvedic understanding of common clinical entities like Obesity and Diabetes Mellitus.
8. Diseases of Asthi - Majjavaha srotas- Sandhigatavata, Introduction to Asthi majjaparipaka, Asthigata Vidradhi and Ayurvedic understanding of common clinical entities like Osteo- Arthritis, Osteomyelitis, Osteoporosis.
9. Vatavyadhi-Akshepaka - Apatanaka - Ardita - Pakshaghata – Gridhrasi – Viswachi, Avabahuka, Manyasthambha – Katigraha-Pangutwa- Khanja-Khalwee and Ayurvedic understanding of common clinical entities like Hemiplegia, Parkinson's disease, Lumbago- Sciatica syndrome, Bell's Palsy, Ankylosing Spondylitis, MND and other commonly occurring neurological diseases.
10. Diseases of Sukravaha srotas- Klaibya and Vandhyatva and understanding of male and female Infertility, Impotence.
11. Diseases of Mutravaha srotas -Mutrkrichha – Mutraghata, Ashmari and Ayurvedic understanding of common clinical entities like Urinary Tract Infection, Urolithiasis,

Nephropathies and Renal failure.

12. Diseases of Swedavaha srotas-knowledge of khalitya, Palitya and Cosmetology.
13. Diseases of Manovaha Srotas - Vishada, Udvega, Bhaya, Bhrama, Anidra, Mada, Murchha, Sanyasa, Apasmara, Unmada, Atatwabhinivesha and Ayurvedic understanding of common clinical entities like Depression, Anxiety neurosis, Phobia, Personality disorders.
14. Indriya Pradoshaja Vikara.
15. Jara janya Vyadhi: Alzheimer's Disease
16. Concept and tools for the study of Anukta Vyadhi (Unexplained and newly emerging diseases).
17. Understanding the concept of karmaja vyadhi

### **PAPER – III PARIKSHA VIGYANA**

1. Introduction to Clinical methods and technique for the study of clinical examination
2. Importance of medical history taking and its importance in clinical medicine.
3. Aims, Objectives and Methods, applied aspects and importance of various Rogi and Roga Pariksha as per classics.
4. Srotas Pariksha, Shadanga Pariksha vis-à-vis general & systemic examination of patient.
5. Interpretation of Charakokta trividha pramana pariksha and Sushrutokta shadvidha pariksha with clinical methods mentioned in modern medicine.
6. Interpretation and use of ashtasthana nirikshana along with use of current tools as per Ayurveda.

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7. Charakokta dashavidha and Sushrutokta Dwadashavidha pariksha along with the use of modern supportive tools for understanding of roigibala and roga bala concept to derive chikitsa sutra
8. Ayurvedic interpretation of all relevant findings of modern clinical examinations, various Laboratory and other Diagnostic tools.
9. Understanding of diagnostic procedures in medical emergencies.
10. Concept of Good clinical practice in Ayurveda and modern medicine.
11. Knowledge of standard clinical laboratory set up useful for Ayurvedic practice.
12. Knowledge of Ancillary common laboratory investigations for diagnosis of diseases, their methods, normal and abnormal values, factors influencing values and their Ayurvedic interpretations & clinical significance as mentioned in practical syllabus.
13. Importance of Bio markers and their utility in clinical researches
- 14.. Update knowledge of emerging diagnostic tools and technologies.
- 15.. Knowledge of various Ayurvedic diagnostic softwares/programmes available.
16. Avayava Pariksha – Radio- Imaging Techniques, Sonological Techniques, ECG, EEG etc and their clinical interpretation.

### **PAPER - IV VIKRITI VIGYANA AND JIVANU VIGYANA**

1. Introduction to pathology and technique for the study of pathology
2. Cell injury and cellular adaptations

3. Immunopathology including amyloidosis and its interpretation with the concept of Ojas vis-à-vis Bala
4. Concept of Shotha versus Inflammation, oedema and healing
5. Derangement of Homeostasis and Hemodynamic disorders
6. General character and classification of Neoplasia
7. Upasargjanya Vyadhi (Communicable diseases)- Romantika – Masurika – Upadamsha – Phirang and introduction to Syphilis, AIDS, Leprosy, Tuberculosis
8. Detail study of Krimi Vigyanam versus infectious and parasitic diseases along with their mode of infection and life cycle
9. Concept of Snayuka, Shleepada and introduction to Filariasis and classification of common parasites.
10. Concept and applied aspects of Janapadodhvamsa and Environmental diseases
11. Nutritional disorders
12. Concept of genetic diseases and its interpretation in terms of Bija dosha
13. Knowledge of common Bacteria, Virus, Parasites, Fungi and their classification with their disease processes, Nutrition requirements, media and methods for culture and sensitivity

#### **PRACTICAL DEMONSTRATION AND HANDS ON EXPERIENCE**

1. Regular posting in Roga Nidana O.P.D.
  2. Regular posting in Roga nidana I.P.D.
  3. Regular posting in Laboratories
  4. Regular posting in other departmental units and Educational Tour to update current medical knowledge
  5. Laboratory record – maintenance of observation diary and laboratory record book.
  6. Experience in conducting following laboratory investigations for diagnosis of diseases and their methods
    - a) Hematological, Biochemical and Serological measures, Peripheral blood film examination
    - b) Rapid diagnostic techniques.
    - c) Screening test for bleeding disorders- Platelet Count, bleeding time (BT), Clotting time (CT), Prothrombin time (PT).
    - d) Blood grouping - ABO system, Rh typing (Rhesus system)
  7. Urine Examination
    - a. Ayurveda anusara mutra pariksha.
- PG Final Year Syllabus-35
- b. Physical Examination, Chemical Examination, and Microscopic Examination
  - c. Dipstix examination
8. Stool Examination
    - i. Ayurveda anusara purisha pariksha-Physical examination - Sama-Nirama Pariksha
    - ii. Microscopic and macroscopic examination of stool
  9. Sputum Examination
    - i. Ayurveda pariksha anusara sthivana.

ii. Physical, Chemical and Microscopic Examination of the sputum.

10. Semen examination

1) Ayurvediya anusara Retas pariksha.

2) Semen examination & clinical interpretation

11. Biochemical tests related to various organ panels- Liver, Kidney, Heart, Thyroid, Pituitary and Bones.

12. Knowledge of different staining techniques in microbiology.

13. Knowledge of Sero-immunological Investigations: RA, Widal test, ASLO titer, ANA, Etc

14. Physical, chemical, microscopic, biochemical and bacteriological tests for various kinds of body aspirates

15. Knowledge of histopathological techniques.

#### **BEDSIDE PRACTICAL /CLINICAL METHODS**

1. Expertise in clinical methods (General and Systemic Examination).

2. Practical knowledge of examination of Roga based on Pancha Nidan.

3. Practical knowledge of instruments used for clinical examination.

4. Practical records of clinical examination of at least 30 long cases in I.P.D.

5. Practical records of clinical examination of at least 50 short cases.

6. Practical knowledge of ECG, USG and Imaging techniques and their clinical interpretation

7. Understanding of various Ayurvedic diagnostic softwares/programmes available like Ayu soft, Rudra, Ayut Nidana etc.

#### **PATTERN OF EXAMINATION**

Name of Paper Hours of training Marks

Paper I 100 100

Paper II 100 100

Paper III 100 100

Paper IV 100 100

Practicals: Hospital/Laboratory duties at least 4 Hours per day

Total 200 :

Observation Diary 10

Laboratory record 10

Short Case (including Case Record)

20

Long Case (including Case Record)

30

Laboratory Work 40

Thesis Presentation 40

Viva Voce 50

#### **REFERENCE BOOKS**

1. Charaka Samhita with Various Commentaries

2. Madhava Nidana with various commentaries

3. Abhinava Vikriti Vigyana - Acharya Raghuvir Prasad Dwivedi  
PG Final Year Syllabus-36
  4. Doshakaranatwa Mimamsa - Acharya P.V. Sharma
  5. Nadi Darshan - Vd. Tara Shankar Mishra
  6. Nadi Vigyanam - Vidyotini Hindi Tika
  7. Nadi Vigyan - Shri Satya Dev Vashisht
  8. Nadi Vigyan - Gangadhar Tika
  9. Nadi pariksha - Vaidya VB Athavale
  10. Nadi Pariksha - GP Upadhyay
  11. Rogi Pariksha vidhi - Acharya Priyavrata Sharma
  12. Roga Vigyan - Dr. Vinay Kumar
  13. Siddanta Nidan - Gananatha Sen
  14. Ayurvediya Roga Vargikaran - Vd. Ramanath and Vd. Gurdip Singh
  15. Ayurvediya Nidan Evum Chikitsa Ke Siddhanta - Prof. Ram Harsh Singh
  16. Relevant portions of Charak Samhita, Sushrut Samhita and Vagbhata
  17. Clinical methods in Ayurveda - K. R. S. Murthy
  18. Parameswarappa's Ayurvediya Vikriti Vigyan - Dr. P.S. Byadgi. and Roga Vikriti Vigyan
  19. Nidan Panchaka - Prof SC Dhyani
  20. Samprapti lakshana yoh sambhandah - K. Sadashiva Sharma
  21. Clinical Diagnosis in Ayurveda in - Vaidya Vasant Patil  
Roga Nidana and Vikriti Vigyana
  22. Oxford Handbook of Clinical Examination - Oxford Handbooks and Practical Skills
  23. Symptoms & Signs in Clinical Medicine - Chamberlains
  24. Clinical Methods - Hutchinson's
  25. Bedside Clinics in Medicine Part- I & II - Kundu
  26. Practical Pathology - Dr. K. Uma Chaturvedi
  27. Medical Laboratory Technology - R. Sood
  28. Clinical Diagnosis and Management by - Todd, Sanford and Davidson Laboratory methods
  29. Robbins Basic Pathology - Kumar, Abbas, Fausto at
  30. Text Book of Pathology - William Boyds.
  31. Text Book of Pathology - Harsh Mohan
  32. Text Book of Pathology - Dey and Dey
  33. Text Book of Parasitology - Ramnik Sood
  34. Clinical Pathology and Bacteriology - S.P. Gupta
  35. A Text Book of Microbiology - Ananthanarayana, Panika
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