

**M.D./M.S.-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.

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

Fundamental research on concepts of Ayurveda

- a. Panchamahabhuta and tridosha.
- b. Concepts of rasa, guna, virya, vipak, prabhav and karma
- c. 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 as 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 Data base- 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).



MEDICAL STATISTICS

Teaching hours: 80

- 1 **Definition of Statistics :** Concepts, relevance and general applications of Biostatistics in Ayurveda
- 2 **Collection, classification, presentation, analysis and interpretation of data** (Definition, utility and methods)
- 3 **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
- 4 **Measures of Central tendency** – Mean, Median and Mode.
- 5 **Variability:** Types and measures of variability – Range, Quartile deviation, Percentile, Mean deviation and Standard deviation
- 6 **Probability:** Definitions, types and laws of probability,
- 7 **Normal distribution:** Concept and Properties, Sampling distribution, Standard Error, Confidence Interval and its application in interpretation of results and normal probability curve.
- 8 **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
- 9 **Univariate analysis of categorical data:**
Confidence interval of incidence and prevalence, Odds ratio, relative risk and Risk difference, and their confidence intervals
- 10 **Parametric tests:** 'Z' test, Student's 't' test: paired and unpaired, 'F' test, Analysis of variance (ANOVA) test, repeated measures analysis of variance
- 11 **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)
- 12 **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.
- 13 **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.
- 14 **Vital statistics and Demography:** computation and applications - Rate, Ratio, Proportion, Mortality and fertility rates, Attack rate and hospital-related statistics
- 15 **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: | |
| 4. Research methodology | -10 Mark |
| 5. Medical statistics | -10 marks |
| 6. 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.
5. Kokate, CK., Khandelwal and Gokhale, SB (1996). Practical Pharmacognosy. Nirali Prakashan. Pune.
6. Trease G E and Evans W C, Pharmacognosy, Bailliere Tindall, Eastbourne, U K.
7. Tyler V C., Brady, L R., and Robers J E., Pharmacognosy, Lea and Febiger, Philadelphia.
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.
2. Brain, KR and Turner, TD. (1975). The Practical Evaluation Phytopharmaceuticals. Wright Scientechnica, Bristol.
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.
9. Mahadik KR, Bothara K G. Principles of Chromatography by, 1st edition, Nirali Prakashan.
10. Qadry JS and Qadry S Z., Text book of Inorganic Pharmaceutical and Medicinal Chemistry, B. S. Shah Prakashan, Ahmedabad.
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
4. David Sultan (2003).Text book of Radiology and Imaging, Vol-1, 7th Edition.
5. Deb, A.C., Fundamentals of Biochemistry, Books and Allied (P) Ltd, 2002.
6. Harold Varley. Practical Clinical Bio-chemistry
7. Kanai L.Mukherjee. Clinical Pathology:,Medical Laboratory Technology Vol. I.Tata McGrawHill 1996, New Delhi.
8. Gradwohl, Clinical Laboratory-methods and diagnosis, Vol-I
9. Clinical Biochemistry -Sabitri Sanyal, Clinical Pathology, B.I.Churchill Livingstone (P) Ltd, New Delhi.2000.
10. Satyanarayanan,U. Essentials of Biochemistry, Books and allied(P) Ltd.2002
11. Zubay, G.L. Biochemistry, W.M.C. Brown Publishers, New York 1998.
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.
5. Day R.A. How to write a scientific paper. Cambridge University Press.
6. Cooray P.G. Guide to scientific and technical writing.
7. Deepika Chawla and Neena Sondhi. (2011). Research Methods- Concepts and cases. New Delhi: Vikas Publishing House.
8. Greenhalgh, T. (2006) How to Read a Paper: The Basics of Evidence-Based Medicine. (3rd ed) Blackwell
9. Kothari- CR (2004). Research Methodology- Methods and Techniques (Second Revised Edition). New Age International Publishers- New Delhi.
10. Kumar, R. 2005. *Research Methodology: a Step-by-Step Guide for Beginners, 2nd ed*. Thousand Oaks, CA, London: Sage Publications.
11. Petter Laake, Haakon Breien Benestad and Bjørn Reino Olsen. (2007). Research Methodology in the Medical and Biological sciences. Academic Press is an imprint of Elsevier, 84 Theobald's Road, London WC1X 8RR, UK. ISBN: 978-0-12-373874-5
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, New Jersey
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: WB 925).
3. Jagdeesh, Sreekant Murthy, Gupta, YK and Amitabh Prakash Eds. Biomedical Research (From Ideation 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 index. Humana Press Inc. ISBN 1-58829-447-1 (acid-free paper) – ISBN 1-59259-955-9 (eISBN)
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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12. *Bombay*.\
 - 12- Jaju B.P.: Pharmacological Practical Exercise Book, *Jaypee Brothers, New Delhi*.
 - 13- Kulkarni S.K.: Hand Book of Experimental Pharmacology, *Vallabh Prakashan, New Delhi*
 - 14- Ravindran R.: X-Pharm (Software), *Indian Journal of Pharmacology, JIPMER, Pondicherry*.

Biotechnology and Bio-informatics:

1. Angela M. Meireles A (2009). Extracting Bioactive compounds for food products. Theory and applications. CRC- Press Taylor and Francis Group.
2. Bergeron BP 2002 Bioinformatics Computing 1st Edition, Prentice Hall
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5. Satyanarayana, U.: Biotechnology, Books and Allied (P) Ltd, Kolkata, 2005
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8. <http://www.zygogen.com>.
9. <http://www.dsr.nic.in/reports/tifp/database/metallo.pdf>.
10. www.consort-statement.org
11. www.strobe-statement.org
12. www.icmr.nic.in

Clinical Evaluation:

1. CDSCO, Good Clinical Practices For Clinical Research in India, Schedule Y (Amended Version – 2005),<http://cdsco.nic.in/html/GCP1.php>
2. Ethical Guidelines for Biomedical Research on Human subjects. (2000). Indian Council of Medical Research- New Delhi.
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9. William C. Scheffer Introduction to Clinical Researchs

Medical Statistics:

1. Armitage, P. and Berry, G. (1994) Statistical Methods in Medical Research (3rd ed). Blackwell Science.
2. Armitage P, Berry G, Matthews JNS: *Statistical Methods in Medical Research*. Fourth edition. Oxford, Blackwell Science Ltd; 2002
3. Bland, M. (2000) An Introduction to Medical Statistics (3rd ed). Oxford: Oxford University Press.
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9. Mahajan B K, Methods in Bio statistics for medical students, 5th Ed. New Delhi, Jaypee Brothers Medical Publishers
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13. Symalan, K. (2006). Statistics in Medicine (First Edition) Trivandrum: Global Education Bureau.
14. Sundar Rao, Jesudian Richard - An Introduction to Biostatistics.
15. Suhas Kumar Shetty- Medical statistics made easy

M.D.-AYURVEDA PRELIMINARY1. AYURVED SAMHITA & SIDDHANTA (Ayurvedic Compendia & Basic Principles)

PAPER-II

THEORY- 100 marks

PART-A

**Practical- Viva-Voce-100
50 marks**

1. Learning and Teaching methodology available in Samhita- Tantrayukti, Tantraguna, Tantradasha, Tachchilya, Vadamarga, Kalpana, Arthashraya, Trividha Gyanopaya, teaching of Pada, Paada, Shloka, Vakya, Vakyartha, meaning and scope of different Sthana and Chatushka of Brihatrayee.
2. Manuscriptology - Collection, conservation, cataloguing, Critical editing through collation, reception (A critical revision of a text incorporating the most plausible elements found in varying sources), emendation (changes for improvement) and textual criticism (critical analysis) of manuscripts. Publication of edited manuscripts.
3. Concept of Bija chatustaya (Purush, Vyadhi, Kriyakaal, Aushadha according to Sushrut Samhita).
4. Introduction and Application of Nyaya (Maxims) - Like Shilaputrak Nyaya, Kapinjaladhikaran Nyaya, Ghunakshara Nyaya, Gobalivarda Nyaya, Naprishtah Guravo Vadanti Nyaya, Shringagrahika Nyaya, Chhatrino Gacchhanti Nyaya, Shatapatrabhedana Nyaya, Suchikatah Nyaya.
5. Importance and utility of Samhita in present era.
6. Importance of ethics and principles of ideal living as mentioned in Samhita in the present era in relation to life style disorders.
7. Interpretation and co-relation of basic principles with contemporary sciences.

PART-B

50 marks

1. Definition of Siddhanta, types and applied examples in Ayurveda.
2. Ayu and its components as described in Samhita.
3. Principles of Karana-Karyavada, its utility in advancement of research in Ayurveda.
4. Theory of Evolution of Universe (Srishti Utpatti), its process according to Ayurveda and Darshana.
5. Importance and utility of Triskandha (Hetu, Linga, Aushadh) and their need in teaching, research and clinical practice.
6. Applied aspects of various fundamental principles: Tridosha, Triguna, Purusha and Atmanirupana, Shatpadartha, Ahara-Vihara. Scope and importance of Pariksha (Pramana).
7. Importance of knowledge of Sharir Prakriti and Manas Prakriti.
8. Comparative study of Principles of Ayurveda and Shad Darshanas.

REFERENCE BOOKS:-

- | | | |
|---|---------------------|----------------------------------|
| 1 | Charak Samhita | Chakrapani commentary |
| 2 | Sushrut Samhita | Dalhana Commentary |
| 3 | Ashtanga Samgraha | Indu commentary |
| 4 | Ashtanga Hridaya | Arundutta and Hemadri commentary |
| 5 | Vaisheshika Darshan | Prashastapada Bhasya |
| 6 | Nyaya Darshan | Vatsyayan Bhasya Patanjala |
| 7 | Yoga Darshan | Vyas Bhasya |

8	Vedantsara	
9	Sarvadarshan Samgraha	
10	Bhartiya Darshan	Baldev Upadhayaya
11	Ayurved Darshanam	Acharya Rajkumar Jain

**M.D.-AYURVEDA PRELIMINARY
RACHANA SHARIR (Anatomy)**

PAPER-II

Theory 100 marks

PART-A

50 marks

1. Basic principles of Sharira, Purushavichaya, Rashi Purusha, Karma Purusha (Shad Dhatuj Purusha), Chaturvimshati Purusha, Ek Dhatu Purusha. Relevant principles described in the Sharirasthan of Sushrut Samhita, Charak Samhita, Ashtang Sangrah and Ashtang Hridaya.
2. Basic principles of Garbha Sharira in Ayurveda: Definitions of Garbha, Shukra Shonita Siddhanta, Dauhrida, Matrijadi Garbhotpattikar bhava.
1. Types of tissues, histological study of liver, spleen, uterus, kidney, endocrine glands, mammary gland, skin, tongue, lungs, bronchi, bones, muscles, cartilages and nervous tissue.

PART-B

50 marks

1. Paribhasha Sharira (Anatomical terminology)
2. Pramana Sharira – Anguli and Anjali Pramana, Sama pramana Sharira, Ayama – Vistara and their prognostic values.
3. Fundamental aspects of Asthi, Sandhi, Peshi Sharir.
4. Fundamental aspects of Sira, Dhamani, Srotas – Definitions, Siravedha, Avedhya Sira. Fundamental aspect of Srotomoola Sthana.
5. Fundamental aspects of Koshtha and Koshthang: Hridaya, Yakrit, Vrikka, phupphusa, Aantra, Pleeha, Adhivrikkagranthi, Basti, Paurushagranthi, Amashaya, Agnyashaya and Vrishana.
6. Fundamental aspects of Uttamangiya Sharir – Introduction to Nervous system - development, divisions, neuron–structure, types, functional anatomy.
7. Mrita shodhan (as per Sushruta) and Mrita Samrakshana (preservation method of human cadaver).

PRACTICAL

100 marks

Contents:

1. Practical study of bones
2. Practical study of organs
3. Practical study of surface and radiological anatomy.
4. Shava Vichhedana – detailed dissection of the whole body.
5. Practical study of location of Marma
6. Demonstration of histology slides (10 slides)

Distribution of marks (Practical)

- | | |
|---|------------|
| 1. Spotting | - 20 Marks |
| 2. Surface Anatomy | - 20 Marks |
| 3. Dissection | - 30 Marks |
| 4. Imaging Anatomy – Basic Principles and Application | - 10 Marks |
| 5. Viva-Voce | - 20 Marks |

REFERENCE BOOKS:

6. Relevant matters of Brihatrayee and Laghutrayee

7. PratyakshaShariram - GananathSen
8. AbhinavaShariram - Damodar Sharma Gaur
9. Parishadyam Sabdartha Shariram - Damodara Sharma Gaur
10. Brihat Shariram - P S Varier
11. Shiva Samhita
12. Gray's Anatomy - Latest Edition
13. Human Anatomy - B D Chaurasia
14. Cunningham's Companion to Manual of Practical Anatomy. Vol I, II & III
15. Developing Human - Keith L Moore & Persaud
16. Clinically oriented Anatomy - Keith L Moore
17. Clinically oriented Neuro Anatomy - Richard Snell
18. Surface and Radiological Anatomy - Halim
19. Grant's Methods of Anatomy - Grant
20. Grant's dissector - Grant
21. Human Embryology - I. B. Singh
22. Ayurvediya Human Anatomy - G. M. Kanthi

M.D.-AYURVEDA PRELIMINARY

3.KRIYA SHARIR

PAPER-II

Theory 100 Marks

PART-A

50 marks

1. Theory of Loka-Purusha Samya
2. Theory of Panchamahabhuta
3. Physiological aspects of Samanya – Visheshha siddhanta
4. Concepts of Tridosha and Triguna
5. Concept of Dhātu
6. Concept of Mala
7. Description of Ojas
8. Process of Ahara Parinama including Aharaparinamakara Bhava and Asta Ahara Vidhi Visayatana
9. Physiological importance of Agni, its classification and functions
10. Dhātuposana theories
11. Concepts of Atma, Manas and Indriya.
12. Concepts of Prakriti and Ashtavidha Sara.
13. Concept of Srotas

PART-B

50 marks

Description of essential and relevant understandings related to contemporary physiology, both general physiology and systemic physiology.

1. Essentials of cell physiology – organization of cell.
2. Membrane physiology- transport across cell membrane, action potentials and resting membrane potentials.
3. Homeostasis- negative and positive feedback mechanisms.
4. Genetic code, its expression and regulation of gene expression.
5. Essentials of cardiovascular physiology- cardiac cycle, regulation of heart rate and blood pressure.
6. Essentials of respiratory physiology- regulation of respiration-chemical and neural, gaseous exchange, transportation of gases.
7. Gastrointestinal physiology- various digestive juices and their actions, gastrointestinal hormones, enteric nervous system.
8. Nervous system physiology- ANS, somatic nervous system, reflexes, general and special sensations, higher mental functions, functions of brain, brainstem and spinal cord.
9. Blood: Blood cells-RBCs, WBCs, platelets, plasma proteins and immunity.
10. Muscle physiology: properties and mechanisms of contraction of skeletal, cardiac and smooth muscles.
11. Physiology of excretion- mechanism of urine formation, micturition.
12. Endocrine physiology: Classification of hormones, hormones secreted by pituitary, thyroid, parathyroid, adrenal glands, pineal, pancreas and their functions.

Study of male and female reproductive system: functions of reproductive hormones.

PRACTICAL

100 marks

Contents:

Ayurvedic practicals

Assessment of Prakriti

Assessment of Sara

Pramana Pariksha

Hematology

Hemoglobin estimation

Total RBC count

Total WBC count

Differential leukocyte count

Packed cell volume (PCV)

ESR

Bleeding time

Clotting time

Blood grouping and Rh typing

Urine examination -

Physical examination- Specific gravity and reaction of urine

Chemical examination

Albumin test

Sugar test

Ketone bodies

Bile salts and pigments

Distribution of marks (Practical)

- | | |
|-----------------------------|------|
| 1. Laboratory Practical | - 20 |
| 2. Human Experiment | - 15 |
| 3. Spotting | - 15 |
| 4. Prakriti Saradi pariksha | - 20 |
| 5. Practical Record | - 10 |
| 6. Viva-voce | - 20 |

REFERENCE BOOKS:

- | | |
|--------------------------------------|-----------------------------|
| 1. Ayurvediya Kriyasharir | - Ranjit Rai Desai |
| 2. Kayachikitsa Parichaya | - C. Dwarkanath |
| 3. Prakrit Agni Vigyan | - C. Dwarkanath |
| 4. Sharir Kriya Vigyan | - Shiv Charan Dhyani |
| 5. Abhinava Sharir Kriya Vigyana | - Acharya Priyavrata Sharma |
| 6. Dosha Dhatu Mala Vigyana | - Shankar Gangadhar Vaidya |
| 7. Prakrita Dosha Vigyana | - Acharya Niranjana Dev |
| 8. Tridosha Vigyana | - Shri Upendranath Das |
| 9. Sharira Tatva Darshana | - Hirlekar Shastri |
| 10. Prakrita Agni Vigyana | - Niranjana Dev |
| 11. Deha Dhatvagni Vigyana | - Vd. Pt. Haridatt Shastri |
| 12. Sharir Kriya Vigyana (Part 1-2) | - Acharya Purnchandra Jain |
| 13. Sharir Kriya Vigyana | - Shri Moreshwar Dutta Vd. |
| 14. Sharira Kriya Vijnana (Part 1-2) | - Nandini Dhargalkar |
| 15. Dosha Dhatu Mala Vigyana | - Basant Kumar Shrimal |
| 16. Abhinava Sharir Kriya Vigyana | - Dr. Shiv Kumar Gaur |
| 17. Pragyogik Kriya Sharir | - Acharya P.C. Jain |
| 18. Kaya Chikitsa Parichaya | - Dr. C. Dwarkanath |
| 19. Concept of Agni | - Vd. Bhagwan Das |

- | | |
|---|-------------------------------|
| 20. Purush Vichaya | - Acharya V.J. Thakar |
| 21. Kriya Sharir | - Prof. Yogesh Chandra Mishra |
| 22. Sharir Kriya Vigyana
Sunil Verma | - Prof. Jayaram Yadav & Dr. |
| 23. Basic Principles of Kriya-Sharir (A treatise on Ayurvedic Physiology) by
Panda | -Dr. Srikant Kumar |
| 24. Sharir Kriya – Part I & II
& Dr. Chobhe | - Dr. Ranade, Dr. Deshpande |
| 25. Human Physiology in Ayurveda | - Dr Kishor Patwardhan |
| 26. Sharirkriya Vignyan Practical Hand Book
Deshpande | - Dr.Ranade, Dr.Chobhe, Dr. |
| 27. Sharir Kriya Part 1&2
Dr.Wavhal | - Dr.R.R.Deshapande, |
| 28. Textbook of Physiology | - Gyton & Hall |
| 29. Review of medical physiology | - William Ganong |
| 30. Essentials Of Medical Physiology | - Sembulingam, K. |
| 31. Concise Medical Physiology | - Chaudhari, Sujit. K. |
| 32. Fundamental of Anatomy & Physiology | - Martini |
| 33. Principals of Anatomy & Physiology | - Tortora & Grabowski |
| 34. Human Physiology | - Richards, Pocock |
| 35. Samson Wrights Applied Physiology, Keele, Neil, joels | |
| 36. Brainstem Control of Wakefulness And Sleep | - Steriade, Mirce |
| 37. An Introduction to Human Physiology | - Green, J.h. |
| 38. Ancient Indian Medicine | - Kutumbiah P. |
| 39. Biographical History of Indian Medicine | - Srikanthamurthy KR |
| 40. Ayurveda Kriya Sharira | - Yogesh Chandra Mishra |
| 41. Textbook of Medical Physiology | - Indu Khurana |
| 42. Tridosha Theory | - Subrahmanya Shastri |
| 43. Statistics in Medicine | - K. Syamalan |

M.D.-AYURVEDA PRELIMINARY
4. DRAVYAGUNA VIGYAN(Materia Medica & Pharmacology)

PAPER-II

Theory 100 Marks

PART-A

50 marks

1.

Panchamahabhuta siddhanta, Samanya Vishesha siddhanta, Tridosha siddhanta. Extensive study on classifications of Dravya as described in Brihatrayi.

2. Applied aspects of Rasa, Guna, Virya, Vipaka and Prabhava
3. Applied aspects of Aushdha karma with reference to Sharngadhara and Bhavaprakasha
4. Importance of Namarupa vigyan and concept of basonyms and synonyms of Dravyas
5. Applied knowledge of Bhaishajya Prayoga (marga, kalpana, matra, anupana, sevan, kala etc.)

PART-B

50 marks

6. Basic principles of Desha pravichara, Dravya sangrahana (collection), Samrakshana (preservation)
7. Evolution of Dravyaguna vigyan with special emphasis on Nighantus
8. Prashasta bhesaj lakshana
9. Profound knowledge on applied aspects of Agrya aushadha
10. Methodology of studying controversial, pratinidhi (substitute), apamishrana (adulterant) and unidentified dravya
11. Pharmacognosy and its relevance in Dravyaguna vigyan
12. An integrated study of Charakokta Bhesaj pariksha and scientific method of drug evaluation with special reference to quality, safety and efficacy
13. Brief knowledge and importance of clinical pharmacology
14. General principles of various good cultivation practices, collection practices, storage practices and manufacturing practices
15. Pharmacovigilance and ADR issues
16. Knowledge on the Ayurvedic Pharmacopoeia of India, The Formulary of India and international pharmacopoeias

PRACTICAL

100 marks

Contents:

1. Field visits for the Identification of important classical medicinal plants (Minimum two visits to neighboring forest areas)
2. Macroscopic and microscopic identification of minimum two plants of each of prayojyanga (useful parts of plants)
3. Preliminary study of pharmacoepial standards (API) of minimum 5 plants
4. Minimum two experiments on Animals

Distribution of marks (Practical)

1. Herbarium sheets -10 Marks
2. Practical of macroscopic and microscopic identification of prayojyanga (one part of the plant) -30 Marks
3. Practical record book of pharamcopoeial standards and animal experimentations -10 Marks
4. Spotting -30 Marks
5. Viva-voce -20 Marks

REFERENCE BOOKS:

1	Abhinav Buti Darpan (Vol.1-2)	-	Vd. Roop Lal Vaishya
2	Aushadna Vigyna Shastra	-	Acharya Pt. Vishvanatha Dwidevi
3	Ayurvediya Aushadnkarma vigyana	-	Acharya V.J. Thakur
4	Bedi Vanaspati Kosha	-	Prof. Ramesh Bedi
5	Bhaishajyaguna Vigyana	-	Dr. Alakhnarayan Singh
6	Bhav Prakash Nigantu (English)	-	Shreekanthamurti
7	Bhav Prakash Nighantu	-	With Vd. Krishna Chandra Chunekar commentary
8	Bhrinad dravyagunadarsha	-	Mahendra Kumar Shastri
9	Classical Uses of Medicinal Plants	-	Acharya Priyavrata Sharma
10	Controversial Medicinal Plants	-	Vd. G. Bapa Lal
11	Dalhana Ka Dravyaguna Shastra Ke Kshetra Me Yogadana	-	Vd. Shiv Kumar Vyas
12	Dravyaguna Kosha	-	Acharya Priyavrata Sharma
13	Dravyaguna Sutram	-	Acharya Priyavrata Sharma
14	Dravyaguna Vigyana	-	Dr. Gyanendra Pandey
15	Dravyaguna Vigyana(Vol. 1-2)	-	Acharya Yadavji Tikram Ji
16	Dravyaguna Vijyana	-	Dr. V.M. Gogate
17	Dravyaguna Vigyana (Vol. 1-5)	-	Acharya Priyavrata Sharma
18	Dravyaguna Shastrum	-	Vaidya G.A. Phadake
19	Dravyaguna Vijyana	-	Dr. A.P. Deshpande
20	Dravyagunavijnana basic Principles	-	Prof.D.S.Lucas
21	Forgotten Healers (Indian Medicinal Plants)	-	Dr. Prakash Pranjape
22	Glossry of Vegetable Drugs in Bhrittrayis	-	Thakur Balwant Singh & Vd. Krishna Chandra Chunekar
23	Introduction to Dravyaguna	-	Acharya Priyavrata Sharma
24	Kriyatamka Aushadi Parichaya	-	Acharya Pt. Vishvanath Dwidevi
25	Materia Medica	-	Acharya Ghosh
26	Nighantu Adarsh (Vol. 1-2)	-	Vd. Bapa Lal
27	Pharmacological basis of Medical Practice	-	Goodman & Gillman
28	Pharmacology and Pharmacotherapeutics	-	Satoskar Bhandarkar & Ainapure
29	Prayogatamaka Dravyaguna Vigyana	-	Dr. Maya Ram Uniyal

30	Priya nighantu	-	Acharya Priyavrata Sharma
31	Raspanchaka/Dravyaguna Siddhanta	-	Prof. Shivcharan Dhyani
32	System of Plant Nomenclature in Ayurveda	-	Dr. Gyanendra Panday
33	Text Book of Pharmacology	-	Trees & Valis
34	Textbook of Dravyaguna	-	Dr.K.Nishteswar
35	Unani Dravyaguna Vigyana	-	Hakim Daljeet Singh
36	Useful parts of Charaka, Sushrut, and Vagbhata.	-	
37	Uttarakand Ki Vanaspatiya	-	Dr. Gyanendra Pandey
38	Vanoaushadi Darshika	-	Thakur Balwant Singh
39	Vanoaushadi Nidarshika	-	Dr. Ram Sushil Singh
40	Vedic Vanaspatiyan	-	Dr. Dinesh Chandra Sharma
41	Pharmacopia of India –all the volumes		
42	Database on medicinal plants all the volums of CCRAS		
43	Aurveda formulary of india – all the volums		
44	All the nighantoos		
45	Laghutrayi		

M.D.-AYURVEDA PRELIMINARY
5. RASA SHAstra AND BHAISHAJYA KALPANA
(Iatrochemistry & Pharmaceuticals Science)

PAPER-II

Theory 100 marks

PART-A

50 marks

1. Fundamental principles of Rasa Shastra and Bhaishajya Kalpana, introduction to Rasachikitsa, Ashuddha and Apakwa Bhasma-sevan Dosha and its management, introduction to Aushadha Sevan Kaal and Prayoga Marga (routes of administration).
2. Introduction to basic principles of Aushadha Yoga (formulations).
3. Classification of Rasa Dravya - concept and relevance.
4. Introduction to principles of Aushadha Nirmana, concept of Shodhan, Marana, Jarana, Murcchhana, Sattvapatan and Amritikarana.
5. Concept of Kashaya, Panchavidha Kashaya and other Kalpana.
6. Concept of Rasashala, Rasa Mandapa with introduction to pharmacy in accordance with the Good Manufacturing Practices (GMP).
7. Critical study of Rasa Ratnasamuchchaya, Rasendra Chintamani, Rasa Tarangini, Sharngadhara Samhita, Chakradutta and Bharat Bhaishajya Ratnakara with special reference to Aushadha-Nirmana.

PART-B

50 marks

1. Introduction to methods of analytical, toxicity, experimental and clinical validation of classical and proprietary Ayurvedic formulations.
2. Introduction to new dosage forms.
3. Introduction to advance instruments of analysis like XRD, XRF, SEM-E-Dax, ICP analysis, Chromatography: TLC, gas chromatography, HPTLC, concept of Nanotechnology and its relevance to Aushadha-Nirman.
4. Concept of Pharmacopoeia and Formulary with introduction of 'The Ayurvedic Pharmacopoeia of India' (API) and 'The Ayurvedic Formulary of India' (AFI).
5. Introduction to databases of medicinal plants published by CCRAS, ICMR and others.

PRACTICAL

100 marks

Contents:

1. Shodhan, Marana, Amritikarana of Rasa Dravya (10 practicals)
2. Preparation of different dosage forms (10 forms)
3. Pharmacopoeial standards of raw and prepared drugs (20 practicals)

Raw Materials

1. Minerals and Metals

Mineralogical Identification

1. Physical form - Crystal and Amorphous
2. Hardness on Moh's scale
3. Brittleness test
4. Fracture and Cleavage
5. Streak test
6. Luster

Mineralogical Identification

2. Plant Material

Macroscopic and Microscopic examination

- a. Organoleptic testing
- b. Estimation of Foreign materials
- c. Microbial load
- d. Moisture content
- e. Determination of ash value - total, water soluble and acid Insoluble ash
- f. Specific gravity
- g. Solubility- water and alcohol
- h. Extract values- water and alcohol
- i. TLC
- j. Determination of optical density
- k. Refractive index
- l. Aflatoxins
- m. Limit tests for heavy metals
- n. pH estimation

Prepared dosage forms:

1. Solid dosage forms

Rasaushadhi

- a) Bhasma and Pishti Pariksha
- b) Determination of Particle size
- c) Limit tests for heavy metals
- d) Determination of moisture content, specific gravity, pH and acid value.

Kasthaushadhi

a. Powders (Churna)

1. Particle size
2. Bulk density
3. Solubility
4. Estimation of Foreign material
5. Microbial load
6. Moisture content
7. Determination of ash value - total, water soluble and acid insoluble ash
8. Solubility - water and alcohol
9. Extract values - water and alcohol
10. TLC
11. Determination of Optical density
12. Refractive Index
13. Aflatoxins
14. Limit tests for Heavy metals
15. pH Value estimation

b. Tablets

1. Uniformity in weight and size
2. Tablet hardness
3. Tablet friability
4. Tablet disintegration
5. Tablet dissolution

c. Semisolid dosage forms

- a. Moisture content
- b. Sugar content
- c. Microbial load

d. Liquids

- pH value
- Specific gravity
- Determination of refractive index
- Acid value
- Viscosity
- Saponification value
- Iodine value

Note:

- All practicals should be performed in accordance with Authoritative Text Books of Schedule-I of D.C.Act-1940.
- All practicals related to Pharmacopoeial Standards should be performed in accordance with Methods Published in Protocol for testing of ASU Medicines and Laboratory Guidelines for the Analysis of Ayurveda & Siddha Formulations published by Deptt. of AYUSH, Government of India.

Distribution of marks (Practical)

- Practical Record Book - 10 Marks
- Practical related to Preparation of Drugs
 - Major practical- one - 20 Marks
 - Minor practical- one - 10 Marks
- Drug analysis
 - Major practical- one - 20 Marks
 - Minor practical- one - 10 Marks
- Spotting - 10 Marks
- Viva-voce - 20 Marks

REFERENCE BOOKS:

1. Rasahridaya Tantra
2. Rasarnava
3. Rasaratna Samuccahaya
4. Ayurved Prakasha
5. Rasendrachudamani
6. Rasendra Chintamani
7. Rasatarangini
8. Rasapraksha Sudhakar
9. Rasamrita
10. Rasa Chandanshu : CCRAS Publication
11. Sharangadhara Samhita
12. Sharangadhara Darpan (BP Pandey)
13. Bhavaprakasha
14. Yoga Ratnakara
15. Bhaishajya Ratnavali
16. Siddha Bhaishajya Manimala
17. Bharat Bhaishajya Ratnakara
18. Rasayoga Sagara
19. Siddha Bhaishajya Manimala
20. Sahasrayoga
21. Siddha Yoga Sangraha – Yadavaji Trikamji Acharya
22. Vaidyaka Paribhasha Pradeepa
23. Ayurvediya Aushadhikarana – Puranik and Dhamanakar
24. Dravyaguna Vijnan Part - 1 and 2 - Yadavji Trikamji

25. Chakradatta - Ratnaprabha, Relevant Parts from Charaka Samhita, Sushruta Samhita, Kashyapa Samhita, Ashtanga Sangraha, Ashtanga Hridaya,
26. Remington: Science and Practice of Pharmacy
27. Theory and Practice of Industrial Pharmacy – Leon Lachman *et al*
28. Clinical Pharmacology, KD Tripathi
29. Clinical Pharmacology, Lawrence Benette
30. Drug Discovery and Evaluation (Pharmacological assays) HG Vogel
31. Pharmacological Basis of therapeutics – Goodman and Gilman
32. Data Base of Medicinal Plants of CCRAS
33. Quality and Standards of Medicinal Plants – ICMR publication
34. Quality Control of Ayurvedic Drugs – PLIM, Gaziabad
35. Ayurvedic Pharmacopeia of India
36. Ayurvedic Formulary of India
37. Indian Pharmacopeia
38. British Pharmacopeia
39. United States Pharmacopeia
40. Pharmacopeia Codex
41. Current Good Manufacturing Practices
42. Drugs and Cosmetic Act 1940 and Rules 1945 with latest amendments
43. Drugs and Magic remedies (Objectionable advertisement) Act-1954
44. Prevention of Food Adulteration (PFA) act
45. Laws pertaining to Narcotics
46. Factory and Pharmacy Acts
47. Consumer Protection Act -1986
48. Brief information on the peer reviewed journals, official websites and other official search engines along with their links (related with the subject)
49. Rutleys Elements of Mineralogy
50. Bhasma Vigyaniam
51. Kupipakva Vigyaniam
52. Anupana Manjari

M.D.-AYURVEDA PRELIMINARY
6. AGADTANTRA AVUM VIDHI VAIDYAKA
(Toxicology & Forensic Medicine)

PAPER-II

Theory 100 marks

PART-A

50 marks

1. Introduction to Agadatantra, its sequential development, traditional and contemporary toxicology.
2. Examination of poisons as per contemporary and Ayurvedic methods.
3. Ancient and contemporary classification of Visha.
4. Knowledge about Sthavara visha, Jangama visha and Kritrima visha, their clinical and pathological manifestations and management.
5. Garavisha and Dushi visha, signs, symptoms and management with contemporary relevance.
6. Vishajanya Janapadodhvamsaniya Roga (community health problems due to poisons) - environmental pollution, water pollution, soil pollution, air pollution etc, their features and management according to ancient and contemporary concepts.
7. Concept of Viruddhahara with contemporary views.
8. Definition of Vyavahara Ayurveda.
9. Fundamentals of Vyavahara Ayurveda. Courts of law in India and legal procedures.
10. Chaturvinshati upakrama (24 management procedures).

PART-B

50 marks

1. Introduction to Forensic medicine.
2. Techniques of pathology, pharmacology, pharmacognosy and microbiology used in toxicology.
3. Death and its medico-legal aspects (Medical Thanatology), Medico-legal autopsy, Legal procedures in clinical forensic medicine.
4. Forensic Science Laboratory:- Structure and functions
5. Introduction to Medical Jurisprudence.
6. Laws related to medical profession. Ancient practice of medical jurisprudence in india.
7. Ancient and contemporary fundamentals of medical ethics.
8. Madya visha (Alcoholism).
9. Diagnosis and Management of food poisoning.
10. General and Emergency medical management of poisoning including preparation, administration and complications of antidotes, antivenoms, antisera.
11. Management of the toxic manifestations caused by the contact poisons (paduka, vastra, abhushana, mukhalepa- vishabadha etc).
12. Diagnosis and management of dermatological manifestations of Visha.
13. Death due to poisoning, duty of physician in poisoning and cases of suspected poisoning.
14. Post mortem findings in poisoning.

PRACTICAL

100 marks

Contents:

Clinical Postings

Case records – 20 cases (Postmortem/ poisoning/dermatological/medico legal cases)



Distribution of marks (Practical)

1. Case records (20 Cases) - 20 Marks
2. Bedside clinical case taking
3. Long Case - 20 Marks
4. Short Case - 10 Marks
5. Identification of specimens, models and equipments of jurisprudence importance. - 15 Marks
6. Spotting related to Visha, Upavisha and other poisonous drugs - 15 Marks
7. Viva-voce -20 marks

REFERENCE BOOKS:

1. Useful Portion of Charak-Sushrut-Vagbhata
2. Dravyaguna Vigyan - Acharya Yadavji
3. Aushadhighunadharm Shastra - Pt Visvanath Dvivedi
4. Kriyatmat Aushada parichaya Vigyan - Pt Visvanath Dvivedi
5. Ayurvedic Vyadhi Vigyan - Acharya Yadavji Trikamji
6. Madhavanidan with Madhukosha commentary
7. Sharangadhara Samhita
8. Yogaratanakara
9. Aushadhighunadharm Shastra - PtGangadhara Shastri Gune
10. Rasendracintamani
11. Rasaratna samuchhaya
12. Vishavigyan - Dr. Krishna Kumar
13. Related matter of Kautilya Artha Shastra
14. Harmekhlatantra
15. Anupana manjari
16. Ayurvedprakash
17. System of clinical Medicine - Savil
18. Forensic Pharmacy -B.M. Mhithai
19. Hand book of Forensic Medicine and toxicology - Dr. P.V. Chadha
20. Viva Forensic Medicine and toxicology - L.C. Gupta
21. Forensic Medicine and Ethics - J.P. Narena
22. Modi's Medical Jurisprudence and Toxicology
23. The essentials of forensic medicine and toxicology -Dr.K.S. Narayan Reddy
24. Medical Laws and Ethics - Dr. H.S. Mehta
25. M.R.K. Krishnan's Handbook of Forensic Medicine
26. Text book of Medical Jurisprudence and Toxicology - Dr. C.K. Parikh
27. Atlas of Forensic Medicine - Dr. Tomio Watenbe
28. Medico legal Post Mortems (Atlas) - Dr. Parikh and Others
29. Textbook of Forensic Medicine and Toxicology - Dr.V.V. Pillay
30. Textbook of Forensic Medicine and Toxicology - Dr. Karmakar
31. Textbook of Forensic Medicine and Toxicology - Dr. Singhal
32. Textbook of Forensic Medicine and Toxicology - Dr. Krishnan Vij
33. Forensic Pathology - Dr. Bernard Knight
34. Textbook of Forensic Medicine and Toxicology - Lyon's
35. Pocket picture guide to Forensic Medicine - Gower's Medical Publication
34. Forensic Medicine - Simpson Knight
35. Taylor's Principles and Practical of Medical Jurisprudence - J and A Churchis
36. Doctor and Law - Singhal
37. Textbook of Toxicology - Singhal

38. Medicine Harrison's Principal of Internal Medicine
39. Agad Tantra - Dr. Shekhar Namboodri
1. Modern Medical Toxicology - Dr. V.V. Pillay
2. Critical care toxicology - Bruent Wallace
3. Diagnosis and Management of common poisoning- Agarwal wali
4. Colour Atlas of Forensic Medicine - Govindaiah
5. Guidelines of poisons - W.H.O.
6. Doctors patients relationships - Dr. Lavekar
7. Bhavaprakasha.
8. Vishavaidya Jyotsnika -- English translation By VPSV Ayurveda college, Kottakkal.
9. Lakshnamritham.
10. Toxicology, Ayurvedic perspective - VPSV Ayurveda college, Kottakkal
11. Text book of Agadatantra - Edited By Dr Huparikar, Dr. Joglekar
12. Agadatantra ki Pathyapustaka - Edited By Dr Huparikar, Dr. Joglekar
13. Vyavahar Ayurveda Vigyanam - Dr. Indramohan Jha (Sachchan)
1. Forensic Medicine - Dr. B. Umadathan
2. Visha Chikitsa - Dr. M. Balakrishnan Nair
3. Park Text book of Preventive and Social Medicine. - K. Park
4. Environmental Science and Biotechnology - Theory and Practice
- A.G. Murukesan & C. Rajakumari
5. Veterinary Toxicology - Dr. Satish K. Gargi
6. Guide to Drinking Water Quality (3 Volumes) - WHO Publication
7. A short Text Book of Medical Entomology - H.S. Bhatti, R. Sehgal, R.C. Mahajan.

M.D.-AYURVEDA PRELIMINARY
8. 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 Dhyani

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

M.D.-AYURVEDA PRELIMINARY
10.KAYACHIKITSA
(General Medicine)

PAPER-II

Theory- 100 marks

PART A

50 marks

1. Understanding of fundamental concepts of Kayachikitsa like Vriddhi and Kshaya of Dosha, Dushya, Mala with Amshaamsha Kalpana. Srotodushti, Khavaigunya, Agni, Ama (Saama and Nirama Dosha, Dhatu & Mala). Aavarana, Rogamarga, Ashayapakarsha, Dosha Gati, Kriyakala. Aushadha Sevana Kala, Anupana, Pathya-Apathya and their scientific relevance during health and disease.
2. Detailed knowledge of Rogi Roga Pariksha including detailed history taking and systemic examination of patient. Clinical implementation of Dwividha Pariksha, Trividha Pariksha, Chaturvidha Pariksha, Panchavidha Pariksha, Shadvidha Pariksha, Ashtavidha Pariksha, Dashvidha Pariksha Bhavas and Prakriyadi Dashvidha Pariksha.
3. Principles of Kayachikitsa in disease management including Shodhana, Shamana and Naimittika Rasayana.
4. Introduction of the basic principles of Modern medicine, Homeopathy, Unani, Siddha, Tibetan Medicine, Yoga and Naturopathy and their relevance in light of the basic principles of Ayurvedic medicine.

PART B

50 marks

1. Chikitsa Siddhanta of Pranavaha, Annavaha, Udakavaha, Rasadi Dhatuvaha, Malavaha & Manovaha Srotovikara.
2. Emergency medicine: Acute Severe Asthma, pulmonary oedema, myocardial infarction, cerebro-vascular accidents, water and electrolyte imbalance, haemorrhage, syncope, seizure, coma, hyperpyrexia, hypertensive encephalopathy.
3. Knowledge of conducting various medical procedures like infusions, tapping, lumbar puncture, Ryle's tube insertion, catheterization, tractions, water seal drainage, Cardio Pulmonary Resuscitation.
4. Basic knowledge of underlying principles of ECG, TMT, echo cardiography, vascular doppler studies, EEG, EMG, X-Ray, USG, CT scan, MRI, PET and their interpretation.
5. Knowledge of common Ayurvedic formulations and preparations used in treatment:
Churna- Triphala, Sitopaladi, Lavanbhaskara, Hingvashtaka, Avipattikara, Gangadhara, Shaddharana, Sudarshana, Panchasakara, Ajmodadi.
Kashaya- Dashamula, Rasnasaptaka, Asanadi, Pathyadi, Phalatrikadi, Punarnavashtaka, Gojivhadi, Mahamanjishthadi, Drakshadi Kashaya.
Asavas-Arista- Amritarishta, Kanakasava, Chitrakasava, Saraswatarishta, Ashwagandharishta, Chandanasava.
Vati- Sanjivani, Chandraprabha, Agnitundi, Chitrakadi, Khadiradi, Vyoshadi, Shankha Vati, Shiva Gutika.
Guggula-Kalpana-Triphalaguggula, Kaishoraguggula, Trayodashangaguggula, Simhanadaguggula, Yogarajaguggula, Gokshuradi guggula, Kanchanaraguggula.
Rasaushadhi- Tribhuvanakirti Rasa, Arogyavardhini Rasa, Shwasakuthara Rasa, Rasamanikya Rasa, Smritisagara Rasa, Lakshmilasa Rasa, Sutshekhara Rasa, Pravala Panchamrita Parpati, Hemagarbhapottali Rasa.

Taila- Mahanarayana Taila, Pindataila, Prasarinyadi Taila, Ksheerabala Taila, Brihat Saindhavadi Taila, Panchaguna Taila, Amritadi Taila, Marichyadi Taila, Mahamasha Taila.

Ghrita- Mahatriphaladi Ghrita, Brahmi Ghrita, Panchtikta Guggulu Ghrita, Sukumara Ghrita, Dadimadya Ghrita, Kantakari Ghrita, Kalyanaka Ghrita.

Lehya- Chyavanaprasha Avaleha, Kushmanda Avaleha, Ashwagandha Avaleha, Agastya Hareetaki Rasayana, Drakshavaleha, Vasavaleha, Amrita-Bhallataka Rasayana.

PRACTICAL

100 marks

Content:-

Daily hospital duties in OPD, IPD and casualty

Bed-side case taking – 25 patients

Distribution of marks

(practical):

1. Case records of 25 Patients in detail 20 marks
2. Bedside clinical case taking-
Long case 20 marks
Short case 10 marks
3. Medical procedures/laboratory work 15 marks
4. Instruments and spotting 15 marks
5. Viva voce 20 marks

REFERENCE BOOKS-

- Charak Samhita -Cakrapanidutta commentry
Sushrut Samhita -with all available commentaries.
Ashtang Samgraha -Indu commentary
Ashtang Hridaya -Arundutta and Hemadri commentry
Cikitsadarsha - Pandit Rajesvardutta Shastri
Kayachikitsa - Ramaraksha Pathak
Rog Pariksha Vidhi - Priyavrat Sharma
Panchakarma Vigyan - Haridas Sridhar Kasture
Ayurved Nidan Chikitsa Siddhanta - Prof. R.H.Singh.
Kayachikitsa Vol. I-IV. - Prof. Ajay Kumar
Davidson's Principles and Practice of Medicine.
API Text Book of Medicine.
Harrison's Text Bok of Medicine.
Cecil Text Book of Medicine.
Relevant texts of concerned subjects.

M.D.-AYURVEDA PRELIMINARY
13.PANCHKARMA
(Five Therapeutic proedure)

PAPER-II

Theory- 100 marks

PART A

50 marks

1. Chikitsa and its classifications; Antah-Parimarjana and Bahir-Parimarjana Chikitsa
2. Principles of Chikitsa, Kriyakal, Shadvidha and Dvididha Upakrama and role of Panchakarma therein.
3. Applied aspects of Trividha, Shadvidha, Ashta Vidha and Dasha Vidha Pariksha.
4. Applied anatomy and physiology of cortex, cranial and peripheral nerves. Methods of physical examinations of central nervous system: sensory system, motor examination-muscle power and tone, superficial and deep reflexes, difference of upper and lower motor neuron lesions. Tremors and coordination.
5. Functions of various single muscles and groups of muscles, applied anatomy and physiology of joints. Methods of examination of locomotor system. Differential diagnosis of Amavata (rheumatoid arthritis), Vatarakta (gout) and Sandhivata (osteoarthritis). Examination of lumbar and cervical disorders including Gridhrasi (sciatica) and Vishvachi (Brachial neuralgia).
6. Applied anatomy and physiology of cardiovascular and respiratory systems, functions of capillaries and its permeability. Methods of examination of respiratory and cardiovascular system. Interpretation of spirometry and ECG findings.
7. Knowledge and method of examination of various skin lesions.
8. Applied anatomy of stomach, small intestine and large intestine. Detailed examination of gastrointestinal system.

PART B

50 marks

1. Definition of Karma. Trividha Karma for Shodhana.
2. Importance of Panchakarma in health and disease.
3. Indications and contraindications for Shodhana. Applied aspects of Koshta and Agni.
4. Importance of Purva and Pashchata Karma in Shodhana. Parihara Vishaya for Panchakarma.
5. Samsarjana Krama. General knowledge of various Aushadha and Ahara Kalpana used for Panchakarma.
6. Areas of research in Panchkarma.
7. Knowledge of equipments and instruments used in Panchkarma in ancient times and the possible modifications therein now.

Knowledge of quality standards of NABH (National Accreditation Board of Hospitals) for Ayurveda, guidelines for establishment and management of eco-friendly Panchkarma theatre including management of biomedical waste.

PRACTI CAL

100 marks

1. Duty in Panchakarma ward and theatre.
2. Performance of 5 Cases each of Snehana, Svedana, Vamana, Virechana, Basti and Nasya with maintaining of detailed record.
3. Record of detailed examination of 25 patients treated with Panchakarma and effects observed thereon.

**Distribution of marks
(practical):**

- | | |
|--|----------|
| 1. Case records of 25 patients in detail | 20 marks |
| 2. Performance of long Karma | 20 marks |
| 3. Performance of short Karma | 10 marks |
| 4. Panchakarmal procedures | 15 marks |
| 5. Instruments and spotting | 15 marks |
| 6. Viva voce | 20 marks |

REFERENCE BOOKS:

- | | | |
|----|---|---|
| 1 | Charak Samhita with commentary of Ayurved Dipika by Chakrapanidatta and Jalpakalpa tarul Gangadhara | |
| 2 | Sushruta Samhita with the Nibhandha Samgraha commentary of Dalhana and Nyayachandrik of Gayadasa on nidansthana | |
| 3 | Ashtang Hridaya with Sarvanga sundara and Ayurved rasayana commentaries | |
| 4 | Ashtanga Sangraha with Shashilekha commentery | |
| 5 | Bhela Samhita | |
| 6 | Kashyapa Samhita | |
| 7 | Bhavaprakasha of Bhavamishra | |
| 8 | Sharangadhara Samhita | |
| 9 | Vangasen | |
| 10 | Gadanigraha | |
| 11 | Ayurvediya Panchkarma chikitsa | Dr Mukundilal Dwivedi |
| 12 | Panchkarma Vigyan | Dr Haridas Shreedhar Kasture |
| 13 | Illustrated Panchkarma | Dr.G Srinivasa Acharya |
| 14 | Ayurveda-Principles and Practice of Panchakarma | Dr. Mandip and Dr Gurdip Singh |
| 15 | The Panchkarma Treatment of Ayurved with Kerala Specialities | Dr. T.L. Devaraj |
| 16 | Panchkarma Therapy | Dr. R.H. Singh |
| 17 | Principles and practice of vasti | Dr. Vasudevan Nampoothiri and Dr. L. M: |
| 18 | Claiton's Physiotherapy | |
| 19 | Teddy's Physiotherapy | |
| 20 | Harrison's Principles of Inernal Medicines | |
| 21 | Guyton's Physiology | |

M.S.-AYURVEDA PRELIMINARY
14. PRASUTI AVUM STRI ROGA
(Gynecology & obstetrics)

PAPER-II

Theory- 100 marks

PART A

50 marks

1. Concept of Tridosha, Dhatu, Upadhatu, Agni, Pancha Mahabhuta in relation to Prasuti and Stri Roga.
2. Concept of Artava and Shukra.
3. Concept of Rasa, Guna, Veerya, Vipak and Karma of Dravya used in Prasuti and Stri Roga.
4. Action and adverse drug reaction related to commonly used plants and Rasa Aushadhi in Prasuti and Stri Roga.
5. Concept of Pathya- Apathya in relation to Prasuti and Stri Roga.
6. Concept of Garbhadhan and Garbha.
7. Concept of Vrana and Vrana dushti.
8. Concept of special therapies of Ayurved used in Prasuti and Stri Roga.
9. Concept of Ashtavidha Shastra Karma, Yantra & shastra used in Prasuti and Stri Roga

PRACTI CAL

100 marks

1. Applied anatomy and physiology of genito-urinary system, abdomen, pelvis, pelvic floor, anterior abdominal wall, inguinal ligament, inguinal canal, vulva, rectum and anal canal.
2. Abnormal development, structure and function of female and male urogenital systems
3. Development, structure and function of placenta, umbilical cord and amniotic fluid.
4. Physiological and neuro-endocrinal changes during puberty, adolescence and menstruation.
5. Introduction of hormones related with gynaecology and obstetrics. Ovulation, fertilization, climacteric and menopause. Biophysical and biochemical changes in uterus and cervix during pregnancy and labour.
6. Pre-natal, Natal and Post natal counseling and examination.
7. Pharmacological study of drugs used in gynaecology and obstetrics.
8. Knowledge of diagnostic techniques used in gynaecology and obstetrics.
9. Basic Knowledge of pathological and biochemical investigation used in gynaecology and obstetrics.
10. Ethics, law and Acts Related to gynaecology and obstetrics – laws of abortion and adoption.
11. Knowledge of contraception and sterilization procedures.
12. Pre-operative and post operative care in gynaecology and obstetrics.

PRACTI CAL

100 marks

Contents:

1. Hospital duties in OPD, IPD, labor room, OT and casualty
2. History taking and counseling - 25 cases.
3. Labor cases - observation/performing - 10 cases

4. Knowledge of instruments required in gynaecology and obstetric practices.
5. Ayurvedic diagnostic and therapeutic procedures.
6. Fluid therapy and blood transfusion.
7. Contraception and sterilizations.

8. Pre-operative, operative and post operative procedures.

Distribution of marks (Practical)

1. Case records of Patients in Detail (25 Cases) - 20 Marks
2. Bedside clinical case taking - 20 Marks
- Long case - 20 Marks
- Short case - 10 Marks
1. Procedures - 15 Marks
2. Identification of instruments, X-ray etc & Spotting - 15 Marks
3. Viva - voce - 20 Marks

REFERENCE BOOKS:

1. Related matter from all the samhitas and their commentaries.
2. Prasuti tantra evum stree roga by prof Tewari P V
3. Concepts of gynecology Dr Nirmala G Joshi.
4. Prasuti Tantra Prof. M. Dwivedi
5. Stree roga vigyan - Dr VNK Usha
6. Navya prasuti Vigyan Dr Pooja Bharadwaja
7. Text book of gynaecology-Berek and Novak.
8. Text book of obstetrics- Williams
9. Text book of obstetrics- D C Dutta
10. Text book of gynaecology - D C Dutta
11. Gabbe's normal and problem pregnancies.
12. Human embryology by Sandler.
13. Jeffcoat's principles of gynaecology
14. Te linde's gynaecological surgery.

M.D.-AYURVEDA PRELIMINARY
15. KAUMARBHRITYA - BALA ROGA
(Pediatrics)

PAPER-II

Theory- 100 marks

PART A

50 marks

1. Development of Kaumarbhritya tantra including ancient and modern literature. Strength of Ayurveda specific to child health care.
2. Vayobheda (Classification of age) according to different classics
3. Anatomical and physiological differences in child compared to adult.
4. Ayurvedic consideration of physiology and pathology of Dosha, Dhatu, Mala, Oja, Agni, Prakriti (sharirika-manasika), Kaya and Dhatuposhana in children.
5. Basic Concepts of growth and development, and its assessment.
6. Ayurvedic and modern clinical methods of examination of healthy and diseased newborn and children.
7. Knowledge of modern diagnostic tools like clinical and laboratory investigations, X-ray, USG, MRI etc.
8. Fundamentals of Ayurvedic treatment for childhood disorders.
9. Applied pharmacological considerations: Ayurvedic and modern concepts of drug doses, administration, distribution, metabolism, excretion, and other important factors of consideration.
10. National programs related to pediatrics.
11. Childhood Samskara
12. Principles of Child Psychology (Ayurvedic & modern concepts)

PART B

50 marks

13. Concept of Bala Rasayana and its application in physical and mental health of children.
14. Concept of Vyadhi-Kshamatva avam Vardhanopaya. Concept of immunity and immune enhancing measures including immunization.
15. Concept of Dhupana and Raksha karma and their clinical application in pediatric practice
16. Basic concepts of single drugs commonly used in pediatric practice with special reference to their karma like- Guduchi, Yastimadhu, Mandukaparni, Shankhapushpi, Ativisha, Pippali, Maricha, Shunti, Haritaki, Amalaki, Tulasi, Bhumyamalaki, Daruharidra, Haridra, Vidanga, Katuki, Dadima, Brahmi, Ashvagandha, Shatavari, Bala, Kampillaka, Trivrita, Jyotishmati, Vacha, Jeevanti, Rasna, Shatavari, Anantamula (Krishna Sariva), Durva, Khadir, Tankana, Tambula, Jatamansi, Sphatika.
17. Knowledge of their ingredients, indications, precautions and specific considerations including adverse drug reactions (ADR) of commonly used Ayurvedic formulations in pediatric practice e.g. Aravindasava, Baalachaturbhadra Churna, Kumarakalyana Rasa, Saraswatarista, Swarnaprashana (Kashyapa Samhita), Kumaryasava, Kushmanda Rasayana (Sharangdhar), Ashvagandha Rasayana (Ashtanga Hridaya), Brahmi Ghrita, Kalyanaka Ghrita, Talishadi Churna, Sitopaladi Churna, Haridra Khanda, Krimikuthara Rasa, Mugdha Rasa, Dantodbheda-Gadantaka Rasa, Rajanyadi Churna (Ashtanga Hridaya), Samvardhana Ghrita, Ashta Mangal Ghrita.

18. Methods of preparation of various specific Kalpana (e.g. Lehya, Syrup, drops etc.) according to needs of children.
19. Common instruments and their application in new born care and general pediatric practice.
20. Specific considerations in research methods related to Pediatrics.
21. Regulatory laws related to child health management.

PRACTICAL

100 marks

Contents:

1. a) In-patient case history record -(25 Patient)
- b) Child Health record - (50 Case)
1. Involvement in Outreach and National programs:
2. School Child health checkup
3. Adolescent education
4. Adolescent counseling etc
3. Pediatric ward/nursery management.

Distribution of marks (Practical)

1. a) Case History Record - (25 Patient) - 10 Marks
- b) Child Health record - (50 Case) - 10 Marks
2. Bed side clinical case taking
1. Long Case - 20 Marks
2. Short Case - 10 Marks
3. Procedures/ Kriya Kalpa - 15 Marks
4. Identification of instruments & Spotting - 15 Marks
5. Viva-voce - 20 Marks

REFERENCE BOOKS:

1. Kashyapa Samhita Complete Hindi translation by Satyapal Vidhyalankara English translation by Prof. Premvati Tiwari
2. Principles & practice of Pediatrics in Ayurveda: CHS Shastri
3. Child Health Care in Ayurveda: Abhimanyu Kumar
4. Ayurvedic Concepts of human Embryology: Abhimanyu Kumar
5. Kaumarbhritya by Prof. D.N. Mishra
6. Kaumarbhritya Ke Antargata Balgraho Ka Kramika Evam Vaigyanika Adhyana by Prof. Chanchal Sharma
7. Notes on Kaumarbhritya-by Dr. Dinesh K S
8. Pran - Pratyagamanam-by Dr. B.M. Singh
9. Ayurveda Dwara Matra Evam Shishu Paricharya by Dr. KS Patel, V.K. Kori & Rajgopal S.
10. Kaumarbhritya related references from Charaka Samhita, Sushruta Samhita Vagbhata etc.
11. Clinical Methods in Paediatrics by Meharban Singh
12. Pediatrics Emergencies by Meharban Singh
13. Essential Pediatrics O.P. Ghai
14. Text Book of Pediatrics Nelson
15. Care of New Born by Meharban Singh



CENTRAL COUNCIL OF INDIAN MEDICINE

POST GRADUATE PRELIMINARY 9. M.D. (AYU) SWASTHAVRITA (PREVENTIVE, SOCIAL MEDICINE & YOGA)

PAPER II

- * TEACHING HOURS FOR THEORY SHALL BE 100 HOURS.**
- ** TEACHING HOURS FOR PRACTICAL SHALL BE 100 HOURS.**

**THEORY- 100 MARKS
PRACTICAL AND VIVA-VOCE - 100 MARKS
(50 MARKS)**

PART A

1. Contribution of Swasthavritta in Community Medicine (Public Health).
2. Comparison of Concept of Swastha according to various Ayurvedic Samhitas.
3. Applied aspect of Swasthya, based on various parameters described in Samhitas.
4. Details of definition and dimensions of health and parameters for its evaluation as per World Health Organization.
5. Relevance of Dinacharya, Ratricharya and Ritucharya in health promotion and prevention of diseases in modern day scenario and different occupations. (Importance of Niyat Kala Vihara-Dincharya, Ratricharya and Ritucharya in prevention of diseases.)
6. Applied aspect of Adharaniya and Dharaniya Vega in health promotion and prevention of diseases with examples. (Importance of Aniyat Kala-Vegdharana, Vega Udirana, Shodhana, Brumhana, Bhutadyasparshana.)
7. Details of Ahara and Poshana as per Samhitas and its role in changing diet patterns of present era.
8. Nidra as per Ayurvedic classics. Effects of changing patterns of sleep on health.
9. Concept of Brahmacharya , Abrahmacharya and its relevance in present era.
10. Concept of Bala and Ojas in relation with Vyadhikshamatva .
11. Importance and relevance of Ritu Shodhana.
12. Role of Rasayana in promotion of health and prevention of diseases. Scope of Rasayana in Geriatrics and Reproductive & Child Health.
13. The concept of Ashtanga Yoga and its relation to health.
14. References about Yoga in Ayurvedic classics.
15. References about Ayurveda in Yoga classics.
16. The phenomenon of disease manifestation based on Adhi and Vyadhi as per Yoga Vashishtha and its relevance with Therapeutic Yoga.
17. Applied aspect of Pancha Mahabhutas in Nature Cure.

Part B

(50 MARKS)

1. Janapadodhdhwamsa and measures of its prevention.
2. Principles of Epidemiology and its application.
3. Concept of disease control and stages of intervention.
4. Role of Swasthavritta and Yoga in prevention of communicable diseases.
5. Role of Swasthavritta and Yoga in prevention of non-communicable diseases.
6. Levels of disease prevention.
7. Kriya Kala and its importance in disease prevention.
8. Basic principles of Sankramaka Vikara - causes, modes of disease transmission, epidemiological triad.
9. Principles of Health Education and its role in community health maintenance and promotion.
10. Environmental health - concept of water, soil and air purification as per Ayurveda and Modern Science.
11. Newer threats to Environment – including plastic, e-waste, radiation and global warming.
12. Importance and relevance of Meteorology in Swasthavritta.
13. Role of Swasthavritta in Maternal and Child Health care.
14. Role of Swasthavritta and Yoga in Sports' Medicine.

15. National Population Policy, Importance of Family Planning Methods in National development. Ayurvedic methods of birth control (Yoga Ratnakara).
16. National Health Policy as per Alma Ata declaration.

PRACTICAL

1. Departmental duties
 - a. Duty in OPD and IPD with regard to Ayurveda Dinacharya, Ritucharya, Pathyapathya, Yoga and Nisargopachara.
 - b. Museum development- wall magazine / charts
 - c. Regular attendance in Yoga training in the Swasthya Rakshana and Yoga OPD.
2. Practice the following daily regimens
 - a. Pratimarsha Nasya
 - b. Anjana
 - c. Kavala and Gandusha
 - d. Abhyanga
 - e. Udvartana
 - f. Prayogika Dhoomapana
 - g. Matra Basti
3. Preparation of different Krittanna Kalpanas
 - a. Laja Manda
 - b. Mudga, Kulatha, Chanaka Yusha
 - c. Shali and Nartaki Peya
 - d. Shali, Dashamoola Yavagu
 - e. Shali Vilepi
 - f. Krishara
 - g. Nimbu Panaka
 - h. Payasa
 - i. Godhuma/Yava/Nartaki Roti
4. Health Awareness lectures to the community (mimimum 5)
5. Assessment of Swasthya (Mimimum 5 cases)
6. Participation in observance of National & International days related to health.
7. Practice of the following Asanas:
Yogic Shukshma and Sthula Vyayama.
Standing Postures- Ardhakatichakrasana, Padahastasana, Ardchakrasana, Trikonasana
Sitting Postures- Swastikasana, Siddhasana, Padmasana, Vajrasana, Bhadrasana, Gomukhasana, Shashankasana / Shashakasana, Ushtrasana, Paschimottanasana, Suptavajrasana, Ardhamatsyendrasana
Supine Postures- Shavasana, Pavanmuktasana, Sarvangasana, Matsyasana, Halsana, Chakrasana,
Prone Postures- Makarasana, Shalabhasana, Bhujangasana, Dhanurasana.
8. Practice of Pranayama.
9. Uccharit Pranava Pranayama (Om Chanting with Pranayama).

Distribution of marks (Practical)

1. Records - 10 Marks
2. Preparation of Kritanna Kalpanas - 20 Marks
3. Dinacharya procedure - 10 Marks
4. Spotting (10) Aahar dravyas, Family Planning Devices, Vaccine/Serum and Models /Specimens, Naturopathic and yogic Specimens. - 20 Marks
5. Yogasana and Pranayam - 10 Marks
6. Viva-voce - 30 Marks

Reference Books:

- 1) Relevant portions of Charak, Sushruta, Vagbhata (Ashtang Hrudaya), Ashtang Samgraha, Sarangadhara, Bhavaprakasha, Madhavanidana &Yogaratnakara, Bhela Samhita with the respective commentaries
- 2) SwasthavrittaSamuchaya -VaidyaPtRajesvarDuttaShastri
- 3) SwasthyaVignyana -Dr.B.G.Ghanekarshastri
- 4) SwasthvrittaVigyan - Dr.Ramharsha Singh.
- 5) Swasthvrittam - Dr.BramhanandTripathi
- 6) AyurvediyaSwasthvrittam - Vd.Jalukar
- 7) SwasthaVigyan - Dr.MukundswaroopVerma
- 8) Swasthavritta - Dr.Shivkumar Gaud
- 9) Swasthavritta- Part-I & II- Vd. Mhaiskar, Vd.Vatve
- 10) Ayurvediya Hitopdesha - Vd.RanjitRai Desai
- 11) Preventive and Social Medicine - J.K.Park
- 12) Preventive and Social Medicine – Mahajan
- 13) Preventive and Social Medicine – B.N.Ghosh
- 14) Community Medicine - Baride and Kulkarni
- 15) Preventive and Social Medicine – Gupta
- 16) Patanjali Yoga Sutra – Maharshi Patanjali, Karambelkar
- 17) HathayogPradipika – SwatmaramYogendra
- 18) GherandSamhita- Gherand Muni
- 19) Shiva samhita - Kaivalyadhama
- 20) Yoga and Ayurveda - Dr.Rajkumar Jain
- 21) YogikYogPadhati - BharatiyaprakrutikChikitsaPadhat
- 22) YogikChikitsa - ShriKedarnath Gupta
- 23) SachitraYogasanDarshika - Dr.IndramohanJha
- 24) Yoga and Yogikchikitsa - Ramharsha Singh
- 25) The Foundation of Contemporary Yoga - R.H.Singh
- 26) Yogadeepika - Shri. B.K.S. Iyengar
- 27) YogasidhantaevumSadhna - H.S.Datar
- 28) PrakritikaChikitsa -Kedarnath Gupta
- 29) PrakrutikChikitsaVigyan - Verma
- 30) PrakrutikChikitsaVidhi - Sharan Prasad
- 31) Light on Yoga, Light on Pranayama- Shri. B.K.S. Iyengar
- 32) Light on Patanjala yogasutra - Shri. B.K.S. Iyengar
- 33) Janasankhyashikshasidhanta evamUpadeysa - S.C.Seel
- 34) Health and Familywelfare - T.L.Devraj
- 35) Bio-Statistics - B.K. Mahajan
- 36) Swasthavritta - Vd.Sakad
- 37) Reddy's Comprehensive Guide to Swasthavritta –Dr.P.Sudhakar Reddy
- 38) Swasthavritta – Vd Yeshwant Patil and Vd. Vhawal
- 39) Swasthavritta – Vd. Patrikar Vijay
- 40) Dr.Me Kay Khau? _Dr.M.S.Kulkarni
- 40) Swasthavrittavidnyan - Dr.MangalaGowri

- 41) Positive Health - Dr.L.P.Gupta
- 42) Biogenic Secretes of Food In Ayurveda - Dr.L.P.Gupta
- 43) Text book of Swasthavritta - Dr.Ranade, Dr.Bobade, Dr.Deshpande
- 44) Food and nutrition – Swaminathan
- 45) Yoga and Nisargopachar- Vd. Prama Joshi
- 46) Essence of Yoga - Dr.MangalaGowri
- 47) The essentials of Nature Cure - Dr.MangalaGowri
- 48) Yogasudha – Dr. Kashinath

Reviewed by

1. Dr. Kamalesh Sharma (Chair person)
2. Dr.Arpan Bhatt
3. Dr. Medha Kulkarni



CENTRAL COUNCIL OF INDIAN MEDICINE

**POST GRADUATE PRELIMINARY
14. MS (AYU) SHALAKYA TANTRA
(DISEASE OF EYE, EAR, NOSE, THROAT, HEAD, ORO- DENTISTRY)**

PRACTICAL AND VIVA VOCE – 100 MARKS

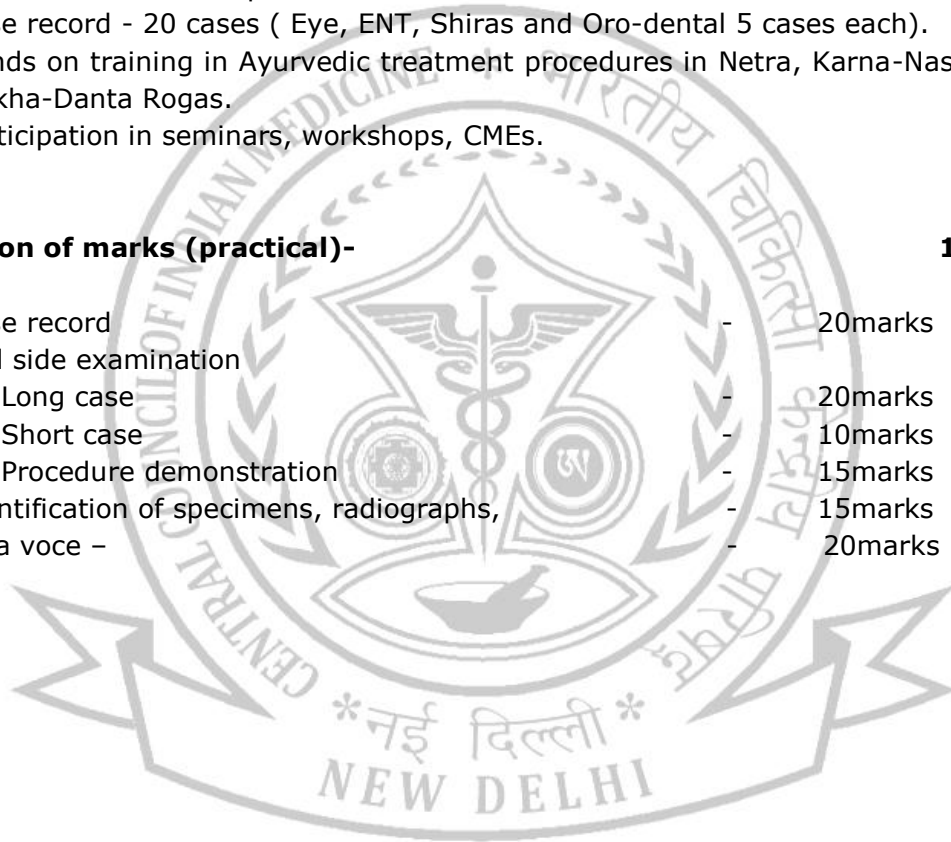
Pattern of practical/clinical training-

1. Clinical postings in OPD, IPD, Kriyakalpa and OT.
2. Clinical bed side case presentation
3. Case record - 20 cases (Eye, ENT, Shiras and Oro-dental 5 cases each).
4. Hands on training in Ayurvedic treatment procedures in Netra, Karna-Nasa – Shira – Mukha-Danta Rogas.
5. Participation in seminars, workshops, CMEs.

Distribution of marks (practical)-

100 marks

1. Case record - 20marks
2. Bed side examination - 20marks
 - a. Long case - 10marks
 - b. Short case - 15marks
 - c. Procedure demonstration - 15marks
3. Identification of specimens, radiographs, - 15marks
4. Viva voce - 20marks



AYURVED DHANWANTARI – SHALAKYA TANTRA
MS (AYU) SHALAKYA
(DISEASES OF EYE, EAR, NOSE, THROAT, HEAD, ORO-DENTISTRY)

FINAL EXAM

METHODS OF TRAINING

- Intensive integrative training would be imparted to scholars in understanding the classical Ayurvedic aspects with an emphasis of critical comparative interpretation.
- Mandatory participation of scholars in seminars, group discussions, clinical demonstrations, journal review meetings, case study, continuing education activities and research clinical projects.
- During the first year course the emphasis would be laid to impart adequate knowledge on fundamental aspects and their applications, with a focus on latest diagnostic tools, instrumentations and laboratory procedures. Practical orientation and hospital based clinical training is an integral part of the curriculum all through and also to be involved in the dissertation work.
- In the second year, training would stress upon extending the knowledge on techniques and imparting skill for surgical performance, so that the scholar is able to perform Eye, Ear, Nose, Throat and Dental surgical procedures independently.
- In the third year the scholar should concentrate on the clinical work and research work based on the dissertation.
- The participation of the scholars in all the aspects of educational process is mandatory.
- Hospital postings- The student has to work for 6 terms (one term of 6 months each) of resident posting is compulsory you to which first 2 postings will be as a JR 1, the next two postings will be as a JR 2 and final two postings as JR 3.
- The student should also develop in the academic work of the department.

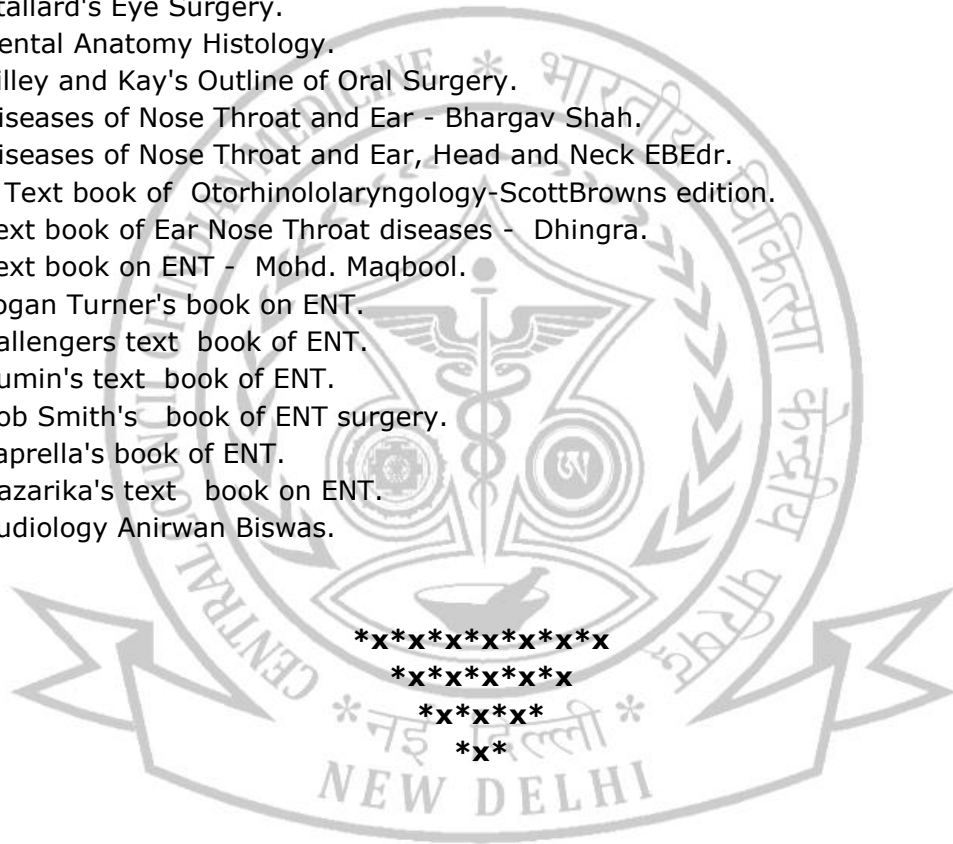
Pattern of Practical Examination:

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| 1. Bed side examination | |
| Short case 2 of 10 marks each | -20 Marks |
| Long case | -20 Marks |
| 2. Identification of specimen/Instrument/Radiograph | -10 Marks |
| 3. Thesis Presentation / Viva | -10 Marks |
| 4. Teaching Skills | -10 Marks |
| 5. Viva Voce | -30 Marks |

Reference Books

1. Charaka Samhita with commentaries.
2. Sushrut Samhita and vaghbhata with commentaries.
3. Astangahridaya and Astangasangraha with commentaries.
4. Madhavanidan with commentaries.
5. Bhavaprakashawith commentaries.
6. Sarangadhara Samhita with commentaries.
7. Sahstrayoga Sangraha.
8. Nimi Tantra.
9. Relevent part of Chakradhatta, Bhel Samhita, Harita Samhita.
10. Shalakya Tantra – Ramanath Dwivedi - R.C. Chaudhary.

11. The Actions and uses of Indigenous Ophthalmic Drugs N. Srikanth.
12. Clinical Examination of Ophthalmic Cases - Agarwal and Gupta.
13. Alder's Physiology of the Eye and Clinical Applications Cotlier, St. Louis.
14. Disease of the Lens and Vitreous, Glaucoma and Hypotony Duke Elder, St. Louis.
15. Manual of the Diseases of the Eye – Bailliere Tindal and Castell. Ahmed E, Dhanda, Dutta, L.C Jaypee brothers, May C and Worth C.
16. Ocular Differential diagnosis.
17. Clinical Ophthalmology – Roy Fedrick Hampton, Lea and Febiger Smith, R Varghese.
18. Manual of Refraction - Duke and Elder.
19. Hand Book of ophthalmology - B.M. Chaterjee.
20. Clinical Ophthalmology - Kanski.
21. Parsons Diseases of Eye.
22. Stallard's Eye Surgery.
23. Dental Anatomy Histology.
24. Killey and Kay's Outline of Oral Surgery.
25. Diseases of Nose Throat and Ear - Bhargav Shah.
26. Diseases of Nose Throat and Ear, Head and Neck EBEdr.
27. A Text book of Otorhinololaryngology-Scott Browns edition.
28. Text book of Ear Nose Throat diseases - Dhingra.
29. Text book on ENT - Mohd. Maqbool.
30. Logan Turner's book on ENT.
31. Ballengers text book of ENT.
32. Kumin's text book of ENT.
33. Rob Smith's book of ENT surgery.
34. Paprella's book of ENT.
35. Hazarika's text book on ENT.
36. Audiology Anirwan Biswas.



CENTRAL COUNCIL OF INDIAN MEDICINE

POST GRADUATE PRELIMINARY 13. M.S. (AYU) SHALYA TANTRA – GENERAL SURGERY

FUNDAMENTAL PRINCIPLES AND APPLIED ASPECTS OF SHALYA TANTRA

PAPER-II

**THEORY- 100 MARKS
TEACHING HOURS – 100 HRS**

PART A

50 MARKS

1. Etymology, Definition, Scope and Importance of Shalya Tantra.
2. Study of Sushruta Samhita Sutra Sthana from 1st to 29th chapter.
3. Study of modern surgical clinical methodology.
4. Applied anatomy, physiology and surgical pathology of common surgical conditions including relevant Ayurvedic aspects.
5. Applied aspect of Shat Kriyakala in the pathogenesis of surgical diseases.
6. Applied aspect of Prakriti in understanding the causes and role of treatment in surgical diseases.
7. Applied aspect of basic principles of Ayurveda in Rogi Pariksha (Trividha, Shadvidha, Ashtavidha and Dashavidha Pariksha).
8. Concept and applied aspect of Sadhya-Asadhya (Prognosis) - Arishtha lakshana.
9. Marma Sharira – Etymological derivation, definition, basic concept of Marma, origin, classification, Pramana. Consequences of Marmaghata and their management.
10. Concept of Shock - Its varieties, etiopathogenesis and management – Cardio-pulmonary resuscitation (CPR), Endo-tracheal intubation and Tracheostomy. Drug reactions and Anaphylaxis – Management.
11. Basics of Fluid, Electrolyte, Acid Base Balance and Nutrition
12. Antibiotics, Analgesics, Anti-inflammatory and Emergency drugs in surgical practice.
13. Surgical Emergency conditions and its management.
14. Sushruta's concept of Rakta. Raktasrava – Haemorrhage – Types, Patho-physiology, clinical features and management. Concept of Raktastambhana – Haemostasis. Bloodtransfusion – Indications, blood groups, components, compatibility and complications with management.
15. Medico-legal aspects in Surgery. Knowledge of documentation and record keeping.

PART B

50 marks

16. Knowledge of ancient and recent Yantra and Shastra – Surgical instruments and their application in surgical practice.
17. Asepsis and Antiseptics. Sterilisation (Nirjivanukaran) - methods and types.
18. Surgical infections – Sepsis, Cellulitis, Erysipelas, Tetanus, Gas gangrene. Handling and care of HIV and Hepatitis positive patients. Knowledge of conditions like Bacteraemia, Septicaemia, Toxaemia and Pyaemia
19. Sangyahan / Anesthesiology - Types, methods, indications, contraindications, complications and its management.
20. Trividha Karma – Purva, Pradhan and Pashchat Karma. Modern principles of pre-operative and post-operative care.

21. Ashtavidha Shastra Karmas.
22. Bandhana Karma – Recent advances.
23. Kshara Karma – Introduction, types, method of various preparations like Kshara, Kshara Varti, Kshara Pichu and applications.
24. Kshara Sutra – Method of preparation, standardization and applications.
25. Agnikarma – Introduction, types and applications.
26. Raktamokshana – Introduction, types and applications.
27. Application of Panchakarma therapy in surgical practice.
28. Scope of Pathya-Apathya in the management of surgical diseases.

PRACTICAL

100 MARKS

Content:

1. Hospital duties in OPD, IPD, OT and Casualty.
2. Case record – 50 cases.
3. Surgical cases – Observing/Assisting/Performing- 50 cases.
4. Knowledge of instruments required in surgical practices.
5. Ayurvedic and Modern diagnostic and therapeutic procedures.
6. Fluid therapy and blood transfusion.
7. Contraception and sterilizations.
8. Pre-operative, operative and post operative procedures.
9. Practical training of local Anaesthesia.
10. Interpretation of Imaging techniques.
11. Practical knowledge of Yogya vidhi – Experimental surgery and Simulators.

Distribution of marks (practical):

1. Presentation of related Research work like Synopsis and Case record - 20 marks
2. Bedside clinical case taking-

Long case	- 20 marks
Short case	- 10 marks
3. Identification of instruments, X-ray etc - 10 marks
4. Demonstration of Surgical and Parasurgical Procedure - 10 marks
5. Viva voce - 30 marks

REFERENCE BOOKS:

1. Sushruta Samhita
2. Ashtanga Sangraha
3. Ashtanga Hridaya
4. Charaka Samhita
5. The Surgical instruments of the Hindus - Girindranath Mukhopadhyaya
6. Shalya Tantra Samuchchaya - Pandit Ramadesh Sharma
7. Shalya Vigyan (Part 1-2) - Dr. Surendra Kumar Sharma
8. Shalya Samanvaya (Part 1-2) - Vd. Anantaram Sharma
9. Shalya Pradeepika - Dr. Mukund Swaroop Verma
10. Sushruti - Dr. Ram Nath Dwivedi
11. Clinical Shalya Vigyan - Dr. Akhilanand Sharma
12. Bhagna Chikitsa - Dr. Prabhakar Janardhan Deshpande
13. Kshara sutra management in anorectal ailments - Dr. S.K. Sharma, Dr. K.R.Sharma and Dr. Kulwant Singh.
14. A manual on Fistula-in-ano and Ksharasutra Therapy – Dr. Manoranjan Sahu
15. Recent trends in the management of Arshas / Haemorrhoids - Dr. P. Hemantha Kumar
16. Anorectal diseases in Ayurveda - Dr. Sizoria and Dr. Praveen

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| 17. Adhunik Shalya Chikitsa Siddhanta | Kumar Chowdary. |
| 18. Agnikarma Technology Innovation | - Dr. Katil Narshingham Udupa |
| 19. Shalya Tantra Ke Siddhant | - Dr. P.D. Gupta |
| 20. Arsha Evum Bhagander Mein sutra Avacharan | - Dr. K.K.Takral |
| 21. Recent advances in Kshara Sutra | - Vd. Kanak Prasad Vyas |
| 22. Leech application in Ayurveda | - Dr. M. Bhaskar Rao |
| 23. Kshara Sutra | - Dr. M. Bhaskar Rao |
| 24. Text book of Shalya Tantra (Ayurvedic Surgery) | - Dr. S.N.Pathak |
| 25. Shalya Shalaky Tantra | - Dr. P. Hemantha Kumar |
| 26. Surgical ethics of Ayurveda | - Vd. S.G. Joshi |
| 27. Anushastra Karma | - Dr. D.N. Pande |
| 28. Concept of Vrana is Ayurveda | - Dr. D.N. Pande |
| 29. Significance for Poorva Karma in Surgical Patient | - Dr. Lakshman Singh |
| 30. Sangyahan Prakash | - Dr. Lakshman Singh |
| 31. Marma Science and Principles of Marma Therapy | - Dr. D.N. Pande |
| 32. Recent trends in the management of Bhagandara / Fistula-in-ano | - Dr. Sunil Kumar Joshi |
| 33. Principles and Practice of Agnikarma | - Dr. P. Hemantha Kumar |
| 34. Shalya Vigyan (Sachitra) | - Dr. Anand Kumar and |
| 35. Text book of Surgery | Dr. Kanchan Shekokar. |
| 36. Operative Surgery | - Anantram Sharma |
| 37. Bailey and Love's Short Practice of Surgery | - Sabistan |
| 38. Text books of Operative Surgery | - Rob and smith |
| 39. Principles of Surgery | - Norman.S. Williams, Charles.V. |
| 40. Emergency Surgery | Mann and R.C.G. Russell |
| 41. Manipal Manual of Surgery | - Farquharson's |
| 42. SRB's Manual of Surgery | - Schwartz |
| 43. Surgery of the Anus, Rectum and Colon | - Hamilton Bailey's |
| 44. Surgical pathology | - Dr. Rajgopal Shenoy |
| 45. Clinical methods in surgery | - Sriram Bhat M |
| 46. Textbook of Operative Surgery | - John Goligher |
| 47. A concise Text Book of Surgery | - Willing Worth |
| 48. A manual on Clinical Surgery | - S. Das |
| 49. A System of Surgical Diagnosis | - S. Das |
| 50. Clinical Anatomy/ Surgical Anatomy | - S. Das |
| 51. A Practical Guide to Operative Surgery | - S. Das |
| 52. Manual of Surgical Instruments | - T.N. Patel |
| 53. Ward Procedures | - John E.Skandalakis |
| 54. Drugs and Equipment for Anaesthesia | - S. Das |
| 55. Primary Anaesthesia | - M.M. Kapur |
| 56. Synopsis of Anaesthesia | - Patel Mansukh. B |
| 57. Outline of Orthopedics | - Arun kumar |
| 58. Fractures and Joint Injuries | - Maurice King |
| 59. Outline of Fracture | - Lee |
| | - John Crawford Adams and |
| | David Hamblen. L |
| | - Watson-Jones |
| | - John Crawford Adams |

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