

ENTRAL COUNCIL OF INDIAN MEDICINE**NEW DELHI
SYLLABUS FOR POST – GRADUATE COURSE IN AYURVED**

Preliminary Examination	
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RESEARCH METHODOLOGY AND BIOSTATISTICS	
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PG 1st Year Syllabus-1

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.

PG 1st Year Syllabus-2

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).

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PART-B

40 marks

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

PG 1st Year Syllabus-4

100 marks**PRACTICAL****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

PG 1st Year Syallabus-5

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, Pharinacognosy, 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, Minneaplis, Minnesota.
9. Wallis- TE (2011)- reprint. Practical Pharmacgonosy (Fourth Edition) Pharma Med Press, Hyderabad.
0. Wallis T E, Analytical Microscopy, J & A Churchill limited, London.
1. Wallis T E., Text Book of Pharmacognosy, J & A Churchill Limited, London.
2. WHO guidelines on good agricultural and collection practices- (GACP) for medicinal plants (2003).World Health Organization- Geneva.
3. WHO monographs on selected medicinal plants (1999)—Vol. 1. 1.Plants, Medicinal 2.Herbs 3.Traditional medicine. ISBN 92 4 154517 8. WHO Geneva.

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Pharmaceutical chemistry, quality control and drug standardization:

1. Ayurvedic Pharmacopoeia of India. Part I- volume 1 to 8 and Part II- volume 1to 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 Knoledge. 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.
0. Qadry JS and Qadry S Z., Text book of Inorganic Pharmaceutical and Medicinal Chemistry, B. S. Shah Prakashan, Ahmedabad.
1. Quality Control Methods for Medicinal Plant Material. Reprint (2002). WHO- Geneva.
2. Rangari V.D., Pharmacognosy & Phytochemistry, Vol I, II, Career Publication,
3. Sharma BK. Instrumental Methods of Chemical Analysis by, Goel Publishing House.
4. Srivastav VK and Shrivastav KK. Introduction to Chromatography (Theory and Practice)
5. Stahl E., Thin Layer Chromatography - A Laboratory Handbook, Springer Verlag, Berlin.
6. 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.
0. Satyanarayanan, U. Essentials of Biochemistry, Books and allied(P) Ltd.2002
1. Zubay, G.L. Biochemistry, W.M.C. Brown Publishers, New York 1998.
2. Text book of Radiology and Imaging, Vol-1, David Sultan, 7th Edition. 2003.

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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.
0. Kumar, R. 2005. *Research Methodology: a Step-by-Step Guide for Beginners, 2nd ed*. Thousand Oaks, CA, London: Sage Publications.
1. 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
2. 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.
7. OECD (2000) Guidance Document on Acute Oral Toxicity. Environmental Health and Safety Monograph Series on Testing and Assessment No 24.
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)
9. OECD Series on Principles of Good Laboratory Practice (GLP) and Compliance Monitoring, 1998. http://www.oecd.org/document/63/0,2340,en_2649_34381_2346175_1_1_1_1,00.php
0. ICH Harmonised Tripartite Guideline (2000). Maintenance of the ICH Guideline on Non-clinical Safety Studies for the conduct of Human Clinical Trials for Pharmaceuticals M3 (R1).
 1. Ghosh M.N.: Fundamentals of Experimental Pharmacology, *Scientific Book Agency*.
 2. *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*.

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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

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
4. Lesk, A.M. Introduction to Bioinformatics Oxford 2002.
5. Satyanarayana, U.: Biotechnology, Books and Allied (P) Ltd, Kolkata, 2005
6. Setubal J. C and J. Meidanis, Introduction to Computational Molecular Biology, PWS Publishing Company, 1997.
7. <http://www.iitb.ac.in/~crnts>
8. <http://www.zygogen.com>.
9. <http://www.dsir.nic.in/reports/tifp/database/metallo.pdf>

0. www.consort-statement.org

1. www.strobe-statement.org

2. 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.
3. Gallo P., Chuang-Stein C., Dragalin V., Gaydos B., Krams M., Pinheiro J. Adaptive Designs in Clinical Drug Development—An Executive Summary of the PhRMA Working Group. *Journal of Biopharmaceutical Statistics*. 16: 275–283; 2006
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5. Gupta, SK Ed. Basic Principles of Clinical Research and Methodology (2007). Jaypee Brothers- new Delhi
6. ICH Harmonised Tripartite Guidelines for Good Clinical Practices.(1997)- Quintiles- Published by Brookwood Medical Publications. Richmond, Surrey. United Kingdom.
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9. William C. Scheffer Introduction to Clinical Researchs

PG 1st Year Syallabus-9

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.
4. Bradford Hill – Basic Medical Statistics
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6. Dwivedi S. N., Sundaram K. R and V. Sreenivas (2009). Medical Statistics - Principles & Methods-BI Publications Pvt. Ltd., New Delhi –1.
7. Gupta S.P. - Fundamentals of statistics, Sultan Chand. Delhi.
8. Indrayan. (2008). Basic Methods of Medical Research. AITBS Publishers- India
9. Mahajan B K, Methods in Bio statistics for medical students, 5th Ed. New Delhi, Jaypee Brothers Medical Publishers
0. Mehdi, B and Prakash A. (2010). Biostatistics in Pharmacology. Practical Manual in experimental and clinical pharmacology. 1st Edition. New-Delhi: Jaypee brothers Medical Publishers
1. Rao, NSN and Murthy, NS. (2008) 2nd Edition. Applied statistics in health sciences. Jaypee Brothers Medical Publishers (P) Ltd. Bengaluru, New Delhi.
2. Rick J Turner and Todd A Durham (2008). Introduction to Statistics in Pharmaceutical Clinical trails. Published by the Pharmaceutical Press- An imprint of RPS Publishing, 1 Lambeth High Street, London SE1 7JN, UK
3. Symalan, K. (2006). Statistics in Medicine (First Edition) Trivandrum: Global Education Bureau.
4. Sundar Rao, Jesudian Richard - An Introduction to Biostatistics.
5. Suhas Kumar Shetty- Medical statistics made easy

PG 1st Year Syallabus-10

M.D.-AYURVEDA PRELIMINARY

1. AYURVED SAMHITA & SIDDHANTA (Ayurvedic Compendia & Basic Principles)

PAPER-II

THEORY- 100 marks

PART–A

Practical- Viva-Voce-100

1. Learning and Teaching methodology available in Samhita- Tantrayukti, Tantraguna, Tantradosha, 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, receion (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.

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1. 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

PG 1st Year Syllabus-12

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)

PG 1st Year Syllabus-13

1. 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:

- | | |
|---|--------------------------|
| 1. Relevant matters of Brihatrayee and Laghutrayee | |
| 2. PratyakshaShariram | - GananathSen |
| 3. AbhinavaShariram | - Damodar Sharma Gaur |
| 4. Parishadyam Sabdartha Shariram | - Damodara Sharma Gaur |
| 5. Brihat Shariram | - P S Varier |
| 6. Shiva Samhita | |
| 7. Gray's Anatomy | - Latest Edition |
| 8. Human Anatomy | - B D Chaurasia |
| 9. Cunnigham's Companion to Manual of Practical Anatomy.Vol I, II & III | |
| 0. Developing Human | - Keith L Moore &Persaud |
| 1. Clinically oriented Anatomy | - Keith L Moore |
| 2. Clinically oriented Neuro Anatomy | - Richard Snell |
| 3. Surface and Radiological Anatomy | - Halim |
| 4. Grant's Methods of Anatomy | -Grant |
| 5. Grant's dissector | -Grant |
| 6. Human Embryology | -I. B. Singh |
| 7. Ayurvediya Human Anatomy | - G. M. Kanthi |

PG 1st Year Syallabus-14

M.D.-AYURVEDA PRELIMINARY**3.KRIYA SHARIR
(Physiology)****PAPER-II****Theory 100 Marks****PART-A****50 marks**

1. Theory of Loka-Purusha Samya
2. Theory of Panchamahabhuta
3. Physiological aspects of Samanya – Vishesh siddhanta
4. Concepts of Tridosha and Triguna
5. Concept of Dhatu
6. Concept of Mala
7. Description of Ojas
8. Process of Ahara Parinama including Aharaparinamakara Bhava and Asta Ahara Vidhi Visesayatana
9. Physiological importance of Agni, its classification and functions
0. Dhatuposana theories
 1. Concepts of Atma, Manas and Indriya.
 2. Concepts of Prakriti and Ashtavidha Sara.
 3. 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.
0. Muscle physiology: properties and mechanisms of contraction of skeletal, cardiac and smooth muscles.
 1. Physiology of excretion- mechanism of urine formation, micturition.

2. 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.

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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
0. Prakrita Agni Vigyana	- Niranjana Dev
1. Deha Dhatvagni Vigyana	- Vd. Pt. Haridatt Shastri
2. Sharir Kriya Vigyana (Part 1-2)	- Acharya Purnchandra Jain
3. Sharir Kriya Vigyana	- Shri Moreswar Dutta Vd.
4. Sharira Kriya Vijnana (Part 1-2)	- Nandini Dhargalkar
5. Dosha Dhatu Mala Vigyana	- Basant Kumar Shrimal

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6. Abhinava Sharir Kriya Vigyana	- Dr. Shiv Kumar Gaur
7. Pragyogik Kriya Sharir	- Acharya P.C. Jain
8. Kaya Chikitsa Parichaya	- Dr. C. Dwarkanath
9. Concept of Agni	- Vd. Bhagwan Das
0. Purush Vichaya	- Acharya V.J. Thakar
1. Kriya Sharir	- Prof. Yogesh Chandra Mishra
2. Sharir Kriya Vigyana	- Prof. Jayaram Yadav & Dr. Sunil Verma

3. Basic Principles of Kriya-Sharir (A treatise on Ayurvedic Physiology) by -Dr. Srikant Kumar Panda
4. Sharir Kriya – Part I & II - Dr. Ranade, Dr. Deshpande & Dr. Chobhe
5. Human Physiology in Ayurveda - Dr Kishor Patwardhan
6. Sharirkriya Vignyan Practical Hand Book - Dr.Ranade, Dr.Chobhe, Dr. Deshpande
7. Sharir Kriya Part 1&2 - Dr.R.R.Deshapande, Dr.Wavhal
8. Textbook of Physiology - Gyton & Hall
9. Review of medical physiology - William Ganong
0. Essentials Of Medical Physiology - Sembulingam, K.
1. Concise Medical Physiology - Chaudhari, Sujit. K.
2. Fundamental of Anatomy & Physiology - Martini
3. Principals of Anatomy & Physiology - Tortora & Grabowski
4. Human Physiology - Richards, Pocock
5. Samson Wrights Applied Physiology, Keele, Neil, joels
6. Brainstem Control of Wakefulness And Sleep - Steriade, Mirce
7. An Introduction to Human Physiology - Green, J.h.
8. Ancient Indian Medicine - Kutumbiah P.
9. Biographical History of Indian Medicine - Srikanthamurthy KR
0. Ayurveda Kriya Sharira - Yogesh Chandra Mishra
1. Textbook of Medical Physiology - Indu Khurana
2. Tridosha Theory - Subrahmanya Shastri
3. Statistics in Medicine - K. Syamalan

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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 bsheshaj lakshana
9. Profound knowledge on applied aspects of Agrya aushadha
0. Methodology of studying controversial, pratinidhi (substitute), apamishrana (adulterant) and unidentified dravya
1. Pharmacognosy and its relevance in Dravyaguna vigyan
2. An integrated study of Charakokta Bsheshaj pariksha and scientific method of drug evaluation with special reference to quality, safety and efficacy
3. Brief knowledge and importance of clinical pharmacology
4. General principles of various good cultivation practices, collection practices, storage practices and manufacturing practices
5. Pharmacovigilance and ADR issues
6. 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 prayojoyanga (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 prajoyyanga (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

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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 Bhritrtrayis | - | 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 |
| | Prayogatamaka Dravyaguna Vigyana | - | Dr. Maya Ram Uniyal |

29		
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

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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	

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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

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2. Plant Material**Macroscopic and Microscopic examination**

- a. Orgnaoleptic 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
0. TLC

1. Determination of Optical density
2. Refractive Index
3. Aflatoxins
4. Limit tests for Heavy metals
5. 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

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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
- Practicals 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. Rasarava
3. Rasaratna Samuccahaya
4. Ayurved Prakasha
5. Rasendrachudamani
6. Rasendra Chintamani
7. Rasatarangini
8. Rasapraksha Sudhakar
9. Rasamrita
0. Rasa Chandanshu : CCRAS Publication
1. Sharangadhara Samhita
2. Sharangadhara Darpan (BP Pandey)
3. Bhavaprakasha
4. Yoga Ratnakara
5. Bhaishajya Ratnavali
6. Siddha Bhaishajya Manimala
7. Bharat Bhaishajya Ratnakara
8. Rasayoga Sagara

9. Siddha Bhaishajya Manimala
0. Sahasrayoga
1. Siddha Yoga Sangraha – Yadavaji Trikamji Acharya
2. Vaidyaka Paribhasha Pradeepa

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3. Ayurvediya Aushadhikarana – Puranik and Dhamanakar
4. Dravyaguna Vijnan Part - 1 and 2 - Yadavji Trikamji
5. Chakradatta - Ratnaprabha, Relevant Parts from Charaka Samhita, Sushruta Samhita, Kashyapa Samhita, Ashtanga Sangraha, Ashtanga Hridaya,
6. Remington: Science and Practice of Pharmacy
7. Theory and Practice of Industrial Pharmacy – Leon Lachman *et al*
8. Clinical Pharmacology, KD Tripathi
9. Clinical Pharmacology, Lawrence Benette
0. Drug Discovery and Evaluation (Pharmacological assays) HG Vogel
1. Pharmacological Basis of therapeutics – Goodman and Gilman
2. Data Base of Medicinal Plants of CCRAS
3. Quality and Standards of Medicinal Plants – ICMR publication
4. Quality Control of Ayurvedic Drugs – PLIM, Gaziabad
5. Ayurvedic Pharmacopeia of India
6. Ayurvedic Formulary of India
7. Indian Pharmacopeia
8. British Pharmacopeia
9. United States Pharmacopeia
0. Pharmacopeia Codex
1. Current Good Manufacturing Practices
2. Drugs and Cosmetic Act 1940 and Rules 1945 with latest amendments
3. Drugs and Magic remedies (Objectionable advertisement) Act-1954
4. Prevention of Food Adulteration (PFA) act
5. Laws pertaining to Narcotics
6. Factory and Pharmacy Acts
7. Consumer Protection Act -1986
8. Brief information on the peer reviewed journals, official websites and other official search engines along with their links (related with the subject)
9. Rutleys Elements of Mineralogy
0. Bhasma Vigyaniam
1. Kupipakva Vigyaniam
2. Anupana Manjari

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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 Janapadodhvasaniya 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.
0. 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.
0. General and Emergency medical management of poisoning including preparation, administration and complications of antidotes, antivenoms, antisera.
1. Management of the toxic manifestations caused by the contact poisons (paduka, vastra, abhushana, mukhalepa- vishabadha etc).
2. Diagnosis and management of dermatological manifestations of Visha.
3. Death due to poisoning, duty of physician in poisoning and cases of suspected poisoning.
4. Post mortem findings in poisoning.

PRACTICAL**100 marks****Contents:**

Clinical Postings

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

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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. Aushadhigunadharm 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. Yogaratnakara
9. Aushadhigunadharm Shastra - PtGangadhara Shastri Gune
0. Rasendracintamani
1. Rasaratna samuchhaya
2. Vishavigyan - Dr. Krishna Kumar
3. Related matter of Kautilya Artha Shastra
4. Harmekhlatantra
5. Anupana manjari
6. Ayurvedprakash
7. System of clinical Medicine - Savil
8. Forensic Pharmacy -B.M. Mhithai
9. Hand book of Forensic Medicine and toxicology - Dr. P.V. Chadha

0. Viva Forensic Medicine and toxicology - L.C. Gupta
1. Forensic Medicine and Ethics - J.P. Narena
2. Modi's Medical Jurisprudence and Toxicology
3. The essentials of forensic medicine and toxicology -Dr.K.S. Narayan Reddy
4. Medical Laws and Ethics - Dr. H.S. Mehta
5. M.R.K. Krishnan's Handbook of Forensic Medicine
6. Text book of Medical Jurisprudence and Toxicology - Dr. C.K. Parikh
7. Atlas of Forensic Medicine - Dr. Tomio Watenbe
8. Medico legal Post Mortems (Atlas) - Dr. Parikh and Others
9. Textbook of Forensic Medicine and Toxicology - Dr.V.V. Pillay
0. Textbook of Forensic Medicine and Toxicology - Dr. Karmakar
1. Textbook of Forensic Medicine and Toxicology - Dr. Singhal
2. Textbook of Forensic Medicine and Toxicology - Dr. Krishnan Vij
3. Forensic Pathology - Dr. Bernard Knight
4. Textbook of Forensic Medicine and Toxicology - Lyon's
5. Pocket picture guide to Forensic Medicine - Gower's Medical Publication
4. Forensic Medicine - Simpson Knight
5. Taylor's Principles and Practical of Medical Jurisprudence - J and A Churchis
6. Doctor and Law - Singhal
7. Textbook of Toxicology - Singhal
8. Medicine Harrison's Principal of Internal Medicine
9. Agad Tantra - Dr.Shekhar Namboodri

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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.
0. Toxicology, Ayurvedic perspective - VPSV Ayurveda college, Kottakal
1. Text book of Agadatantra - Edited By Dr Huparikar, Dr. Joglekar
2. Agadatantra ki Pathyapustaka - Edited By Dr Huparikar, Dr. Joglekar
3. 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.

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M.D.-AYURVEDA PRELIMINARY**7. SWASTHAVRITTA & YOGA**
(Preventive, Social Medicine & Yoga)**PAPER-II****PART A****Theory 100 marks****50 marks**

1. Importance and relevance of Swasthavritta and Community Medicine. History of community medicine.
2. Concept of health and disease as per Ayurveda and Modern Medicine. Various definitions and dimensions of health as per Ayurveda and World Health Organization.
3. Relevance of Dinacharya, Ratricharya and Ritucharya in Health Promotion.
4. Basic concept of Vega. Concept of Adharaniya and Dharaniya Vega in health promotion and prevention of diseases with examples.
5. Concept of Trayopastambha in health promotion and prevention of diseases.
6. Concept of nutrition as per Ayurveda and modern science.
7. Concept of Vyadhikshamatva. Concept of Bala and Ojas in relation to health.
8. Role of Panchakarma in preventive medicine.
9. Role of Rasayana in promotion of health and prevention of diseases. Scope of Rasayana in Geriatrics and Reproductive & Child Health.
0. The concept of Ashtanga Yoga and its relation to health. Concept of Moksha.
1. Basic concepts of Nisargopachara including Panchabhautika Chikitsa.

PART B**50 marks**

1. Concept of Janapadodhwamsa and tools of its prevention.
2. Principles of Epidemiology. Definitions in infectious disease epidemiology.
3. Concept of disease control and intervention strategies.
4. Levels of disease prevention
5. Basic principles of Samkramak Vikara- causes, modes of disease transmission, epidemiological triad
6. Principles of Health Education
7. Environmental Health- concept of water, soil and air purification as per Ayurveda and modern science.
8. Introduction to Meteorology
9. Role of Swasthavritta in maternal and child health care.
0. National Population Policy, National Health Policy as per Alma Ata Declaration and Role of Ayurveda therein.
1. Role of Swasthavritta in communicable and non-communicable diseases and life style disorders.
2. Biomedical waste management.
3. National health programmes.

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PRACTICAL**100 marks****Contents:**

1. Duty in OPD and IPD with regard to Pathyapathya, Yoga and Nisargopachar
2. Preparation of different Kritanna Kalpana
3. Practice of the following
 - A. Pratimarsha Nasya
 - B. Anjana
 - C. Kavala and Gandusha
 - D. Abhyanga
 - E. Udvartana
 - F. Prayogika Dhoomapana
 - G. Matra basti
4. Health awareness lectures to the community (minimum 5)
5. Participation in observance of National & International days related to health.
6. Proficiency in performing the following Asanas

Standing Postures- Ardhakatichakrasana, Padahastasana, Ardchhakrasana, Trikonasana.

Sitting postures- Swasthika, Gomukha, Padmasana, Vajrasana, Bhadrasana, shashankasana, Ushtrasana, Pashchimottanasana, Suptavajrasana, Ardhamatsyendrasana, Siddhasana.

Supine Postures- Pavanamuktasana, Sarvangasana, Matsyasana, Halasana, Chakrasana, Shavasana.

Prone postures- Bhujangasana, Shalabhasana, Dhanurasana, Makarasana.

Distribution of marks (Practical)

- | | |
|--|------------|
| 1. Records | - 20 Marks |
| 2. Long Procedures | - 20 Marks |
| 3. Short Procedures | - 10 Marks |
| 4. Spotting - Aahar dravyas, Family Planning | |

Devices, Vaccine/Serum and Models/Specimens,
Naturopathic and Yogic specimens etc. - 10 Marks

1. Yogasana - 20 Marks
2. Viva-voce - 20 Marks

REFERENCE BOOKS:

1. Relevant portions of Charak, Sushruta, Vagbhata (AshtangHrudaya), Ashtang Samgraha, Sarangadhara, Bhavaprakasha, Madhavanidan&Yogaratanakara, Bhela Samhita with the respective commentaries
2. Swasthavritta Samuchaya -VaidyaPtRajesvarDuttaShastri
3. Swasthya Vignyana -Dr.B.G.Ghanekarshastri
4. Prakritika Chikitsa -Kedarnath Gupta
5. Reddy's Comprehensive Guide to Swasthavritta -Dr.P.Sudhakar Reddy
- Swastha Vigyan - Dr.MukundswaroopVerma
- Ayurvediya Hitopdesh - Vd.RanjitRai Desai
- Yoga and Ayurveda - Dr.Rajkumar Jain
- Swasthavritta Vigyan - Dr.Ramharsha Singh.

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1. Swasthrittam - Dr.BramhanandTripathi
2. Ayurvediya Swasthrittam - Vd.Jalukar
3. Hathayog Pradipika - SwatmaramYogendra (Kaivalyadhama)
4. YogikYog Paddhati - BharatiyaprakrutikChikitsaPadhat
5. Yogik Chikitsa -ShriKedarnath Gupta
6. Prakrutik Chikitsa Vigyan - Verma
7. Janasankhyashikshasidhanta evam Upadesa - S.C.Seel
1. Swasthavritta - Dr.Shivkumar Gaud
2. Health and Family Welfare - T.L.Devra
3. SachitraYogasan Darshika - Dr.IndramohanJha
4. Preventive and Social medicine - J.K.Park
5. Yogadeepika - Shri. B.K.S. Iyengar
6. Swasthavritta - Vd.Sakad
7. Positive Health - Dr.L.P.Gupta
8. Biogenic Secretes of Food In Ayurveda - Dr.L.P.Gupta
9. Yoga and Yogikchikitsa - Ramharsha Singh
0. The Foundation of Contemporary Yoga - R.H.Singh
1. Yogasidhanta evum Sadhna - H.S.Datar
2. Patanjali Yoga Sutra - Maharshi Patanjali, Karambelkar
3. Prakrutik Chikitsa Vidhi - Sharan Prasad
4. Text book of Swasthavritta - Dr.Ranade, Dr.Bobade, Dr.Deshpande
5. Gherand Samhita
6. Bio-Statistics - B.K. Mahajan
7. Swasthavritta Vidnyan - Dr.Mangala Gauri
8. Community Medicine - Baride and Kulkarni.
9. Light on Yoga - Shri. B.K.S. Iyengar
0. Light on Pranayama - Shri. B.K.S. Iyengar
1. Light on Patanjala Yogasutra - Shri. B.K.S. Iyengar
2. Shiva Samhita - Kaivalyadhama
3. Gheranda Samhita - Kaivlyadhama
4. Swasthavritta Vigyan - Vd. Patrikar Vijay
5. Swasthavritta - Vd Yashwant Patil and Vd. Vhawal
6. Food and Nutrition - Swaminathan
7. Preventive and Social Medicine - Mahajan
8. Preventive and Social Medicine - B.N.Ghosh
9. Preventive and Social Medicine - Gupta
0. Yoga and Nisargopachar - Vd. Prama Joshi

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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 Practical | - 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

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|---|--------------------------------|
| 8. Vyadhivigyan I and II | - Yadav Thrikamji |
| 9. Ayurvediya Roga Vargikaran | - Vd. Ramanat Vd. Gurdip Singh |
| 0. Ayurvediya Nidan Evum Chikitsa Ke Siddhanta | - Prof. Ram Harsh Singh |
| 1. Clinical methods in Ayurveda | - K. R. S. Murthy |
| 2. Parameswarappa's Ayurvediya Vikriti Vigyan & Roga Vikriti Vigyan | - Dr. P.S. Byadgi. |
| 3. Oxford Handbook of Clinical Examination and Practical Skills | |
| 4. Symptoms & Signs in Clinical Medicine | - Chamberlains |
| 5. Hutchison's Clinical Methods | |
| 6. Bedside Clinics in Medicine Part- I & II | - Kundu |
| 7. Practical Pathology | - Dr. K. Uma Chaturvedi |
| 8. Medical Laboratory Technology | - R. Sood |

9. Clinical Diagnosis and Management by Laboratory methods - Todd, Sanford and Davidson

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M.D.-AYURVEDA PRELIMINARY**9.CHHAYA AVUM VIKIRAN VIGYAN****(Imaging and Radio diagnosis)****PAPER-II****Theory- 100 marks****PART A****50 marks**

1. Objectives of Chhaya avum Vikiran Vigyan.
2. History, development and concept of Chhaya avum Vikiran vigyan
3. Poorva karma (preparatory measures) related to Chhaya avum Vikiran Vigyan in relation to consultant, technical staff and patients (with their attendants) including counseling and consent.
4. Review of fundamental principles of Ayurveda.
5. Shishyopanayan regarding the Chhaya avum Vikiran Vigyan – introduction of Chhaya avum Vikiran department and hospital unit, guidelines for their use, do's and don'ts, discipline, duties and responsibilities.
6. Ethical and legal issues related to Chhaya avum Vikiran Vigyan.
7. Precautions and preventions in Chhaya avum Vikiran Vigyan unit.
8. Environmental issues related to Chhaya avum Vikiran Vigyan. Impact of used radiological energies on environment.
9. Disposing and recycling of radiological materials. Biomedical waste disposal management in Chhaya avum Vikiran Vigyan.
0. Management of Chhaya avum Vikiran Vigyan department. Relation between consultant, student, technical staff, patients (with their attendants).
1. Basic concept of research methodology related to Chhaya avum Vikiran Vigyan.

PART B**50 marks**

1. Preliminary knowledge of various modalities of Chhaya avum Vikiran Vigyan.
2. Efficiency and limitations of various radiological modalities.
3. Introduction of surface and applied anatomy, patho-physiology related to Chhaya avum Vikiran Vigyan.
4. Preliminary knowledge of equipments related to radiology.
5. Selection of appropriate radiological modalities- basis of selection, correct radiological investigation advice, further assessments and diagnostic advice.
6. Management of emergencies in radiology section, electrical and mechanical violent emergencies, radiation hazards and its preventive measures.
7. Pharmacology and application of emergency drugs, analgesics, muscle relaxants, fluids, plasma expanders, oxygen and various contrast media used in Radio-diagnosis and imaging.
8. Drug and contrast media reactions and shock - its management, cardio-cerebro-pulmonary resuscitation (CCPR), endo-tracheal intubation, tracheostomy.
9. Anesthesiology related to radiology.
0. Short review of common diseases, frequently investigated in the Chhaya avum Vikiran Vigyan department especially their clinical findings, anatomical and patho-physiological changes.
1. Skills of transfer of knowledge- Teaching methodology, audio-visuals preparation and presentations.
2. Knowledge of Information Technology – relevant to radiology.
3. Record keeping.
4. Documentation, books and journals, research paper writing.

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PRACTI CAL**100 marks****Contents:**

- Evaluation of knowledge of functioning of equipments

- Evaluation of knowledge of Chhaya avum Vikiran Vigyan procedures
- Management of Chhaya avum Vikiran vigyan department
- Management of emergencies in Chhaya avum Vikiran Vigyan unit
- Personality development assessment.
- Basic knowledge of concepts of radiological interpretations

Distribution of Marks (practical):

1. Case Records of 25 patients	20
2. Chhaya avum Vikiran Vigyan procedures -	
1. Long procedure	20
2. Short procedure	10
3. Identification and functioning of instruments and equipments	15
4. Interpretation of Radiograph and images	15
5. Viva Voce	20

REFERENCE BOOKS:-

Shusruta Samhita	Relevant part
Charak Samhita	- do-
Astang Hridaya/Sangrah	- do-
Text Book of Radiographic Positioning and Related Anatomy John P Lampignano	- By Kenneth L Bontrager,
Radiographic interpretation to general practitioner Procedures in diagnostic Radiology Thomson.	-W.H.O. - By T. Doyle, W. have, K.
Radiographic positioning Radiobiology for the Radiologist - By Curry T S , Dowdey J E	- By Clark - By Hall.Christensen's Physics of Diagnostic Radiology
, Murry R C	
Farr's Physics for Medical Imaging	- By Penelope Allisy-
Roberts , jerry Williams	
Fundamental of Diagnostic Radiology	- By Brant.
Diagnostic Imaging	- By Federle
Diagnostic Imaging	- By Peter Armstrong ,
Martin Wastie , Ansrea	
Rockall	
Gastrointestinal radiology	- R.L. Eisenberg
Uro-radiology .B.Talner	- T.Sherwood, A.J.Davidson,
Grainger and Allison's Diagnostic Radiology imaging	-Text book of medical
Text Book in Radiology and Imaging	- By D. Sutton.
Introduction to Vascular Ultrasonography	- By Zwiebel , Pellerito
Text book in Ultrasonography	- By Roumack
Manual of Medical Diagnostic Ultrasonography	- By W.H.O. Scientific group.

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Computed Tomography & MRI of the whole body	- By Hagga.
Surface and Radiological Anatomy	- By A. Halim
X-Ray equipment for student Radiographers	- By DN and MO Chesney
Clinical Sonography , A Practical Guige	- By Roger C. Sanders , Tom Winter
Ultrasonography in obstretics and gynaecology	-Callen
Standard Journals like Indian Journal of Radiology, Radiology,Radiological clinics of north America,British Journal of Radiology etc.	
Audio-visual aids	-CDs & DVDs

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M.D.-AYURVEDA PRELIMINARY**10.KAYACHIKITSA
(Genral 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.

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- 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, Prasariyadi 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.

PRACTI CAL**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.	

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M.D.-AYURVEDA PRELIMINARY**11. MANO VIGYAN AVAM MANAS ROGA****(Psychiatry)****PAPER-II****Theory- 100 marks****PART A****50 marks**

1. Concept of Manas in Sankhya, Yoga, Nyaya, Vaisheshika, Purva Meemamsa, Vedanta, Bouddha, Tantra and Purana. Philosophical concepts in Ayurveda and its applications.
2. Basic principles of Ayurveda psychology - Srishti utpatti, Triguna, Loka purusha samya Siddhanta, determination of Purusha according to Dhatubheda, Chikitsadhikrita purusha in a psycho somatic axis, Perception and cognition in Ayurveda. Dosha, Dhatu, Agni, Mala Vigyanam and its psychosomatic importance, 'Shariramapi Sattvamanuvidhiyate Sattvam Cha Shariram'. Concept of Dharma, Artha, Kama and Moksha, concept of Apunarbhava in Ayurveda, Trividha Eshana.
3. Introduction to psychoanalytical concept – Id, Ego, Super ego. Concept of mind in Western psychology
4. Concept of Mana in Ayurveda, Mano Nirupana, Manaswarupa, Sthana, Vishaya, Karma, Guna and Dosha. Manovyapara, Gyanotpatti, Gyanotpattau Manaso Dayittwam. Manas as 'Cheshta Pratyayabhutam Indriyanam Indriyo-Pakramaniyam'. Atma nirupana, Atmaguna.
5. Psychological Processes – Attention and perception, intelligence, creativity, motivation, emotion, sex and other drives, states of consciousness, learning, memory, cognition and dream, knowledge of developmental psychology.
6. Understanding of Manasika bhava / Manovikara and their importance in Manasroga Nidana and Chikitsa – Iccha, Dwesha, Sukha, Dukha, Lobha, Moha, Krodha, Shoka, Vilapa, Preeti etc. Emotional aspects of human behaviour.
7. Manovaha Sroto Nirupana, basics of neurophysiology, neurotransmitters, psychoneuroimmunology, physiological basis in human behaviour, influence of nervous system on human behaviour, sensory systems, autonomic nervous system, study of Ojas, Gyanendriya and Buddhi.
8. Satvikadi Kayanam samanya gyanam, basic concepts of personality, Sattvabala and mental disorders.
9. Manasroga samanya nidana, Pragyaparadha- samkshipta vivarana. Vibhramsha of Dhee, Dhriti and Smruti, Mano Dosha and Sharir Dosha in psychopathogenesis, Sadvritta and its importance.
0. Relation of psychology with parapsychology.

PART B**50 marks**

1. Basic understanding of Sattva Pariksha , utility of Trividha, Shadvidha, Ashta Sthana, Dashavidha and Srotopariksha in psychiatric practice, Vikriti pariksha- Vibhrama of Mano -Buddhi- Samgya Gyan-Smruti-Bhakti-Sheela-Cheshta and Achara.
2. Psychiatric examination- Mental status examination, mini mental status examination, cognitive assessment with higher mental functions, personality and self in psycho analysis, basic psychiatric assessment inventories- Hamiltons scale, Bech's inventory, GRISS questionnaire, Weschlers' scale for intelligence.
3. Clinical psychology – General psychology with schools of psychology, theories of personality development, social dimensions of behavior and current issues, doctor patient relationship, patient interviewing and study of therapeutic relationship. Basic knowledge about anxiety disorders, delusional disorders, phobic disorders, lying, stealing, juvenile delinquency. Mental hygiene and behaviorism.
4. Technical terms used in psychiatric practice, general symptoms of psychiatric disorders, classification of psychiatric disorders as per DSM and ICD classifications.

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5. Basic knowledge about organic psychosis, psychoneurosis, Schizophrenia, mood disorders, personality disorders, sexual perversions, sleep disorders and mental retardation.
6. Basic understanding of Bhuta, Graha and Bhutavidya. Hetu, Lakshana and Samprapti of Unmada, Apasmara, Atattwabhinivesha, Grahavesha, Bhutonmada, Gadodvega, Yoshapasmaras, Madatyaya.
7. Nidra and Swapna, its types and role in psychopathogenesis.
8. Basic understanding of Chikitsa bheda, descriptions of general and specific principles of Kayachikitsa, its practical application in Manasroga, Daivavyapashraya, Yuktivyapashraya, Satvavajaya chikitsa and Dravya-adravaya chikitsa, Manodosha Samanya chikitsa, basic treatment principles in Manasika vyadhi, Panchkarma and its application in Manasika roga, Importance of Rasayana and Vajikarana therapies in Psychiatric practice, Medhya rasayana.
9. General knowledge in the basic management principles of psychiatric disorders in modern medicine. Basic knowledge on psychopharmacology, forensic psychiatry, community psychiatry, liaison psychiatry, child psychiatry and geriatric psychiatry.
0. Application of psychiatric knowledge in other specialities viz. Kayachikitsa, Agadatantra, Shalya, Shalakya, Prasuti- Stri Roga and Kaumarabhritya.
1. Psychosomatic disorders, psychological understanding on essential hypertension, asthma and other allergic disorders, psoriasis, IBS, ulcerative colitis, CAD, tension /vascular headaches, pseudopsychosis, hyperemesis gravidarum, enuresis, diabetes mellitus, obesity, autoimmune disorders, neoplasm and psychosexual disorders.
2. Basic understanding of diagnostic applications- Haematological, biochemical, serological, histopathological, imaging - ECG, EEG, USG, MRI scan, CT scan, PET scan in psychosomatic, psychiatric and neuro- psychiatric practices.

PRACTICAL**100 marks****Contents:**

1. Daily hospital duties in OPD, IPD and casualty
2. Practical Record Book
 1. Psychiatric – 5 cases
 2. Psychosomatic – 5 cases
 3. Paediatric / Geriatric Psychiatry – 5 cases
 4. Psychosexual / Substance abuse – 5 cases
3. Psychiatric Inventories- MMSE, Hamilton Anxiety Depression Rating Scale, Brief Psychiatric Rating Scale, Bech's Depressive Inventory, Weschlers' scale, GRISS questionnaire -2 Cases each
4. Manasa Bhava assessment scales- Sattvabala, Manasa Kaya, Smriti, Buddhi, Raja and Tama rating, Manas Bhava Pariksha – 2 cases each

Distribution of marks (Practical)

- | | |
|--|------------|
| 1. Case records of Patients in Detail (25 Cases) | - 20 Marks |
| 2. Bedside clinical case taking | |
| Long case | - 20 Marks |
| Short case | - 10 Marks |
| ▶ Procedure | - 15 Marks |
| ▶ Instruments & Spotting | - 15 Marks |
| ▶ Viva - voce | - 20 Marks |

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REFERENCE BOOKS:

1. Related matter of Charak, Sushrut and Vagbhata and other ancient texts with commentaries
2. Prachin Manovikara Vigyanm - Ayodhya Prasad Achal
3. Ayurvediya Padarth Vigyan - Ranjit Rai Deshai
4. Ayurved Darshan - Acharya Rajkumar Jain
5. Purusha Vichaya - Prof. V.J. Thakkar
6. Ayurvediya Manas Vigyan - Prof. Ram Harsh Singh
7. Yoga evum Ayurved - Acharya Rajkumar Jain
8. Basic principles of Ayurvediya Padartha Vigyan - Dr Yogesh Chandra Mishra
9. Synopsis of Psychiatry - Harold kaplon and Benjamin saddock
1. Oxford textbook of Psychiatry - Michael Gerlder, Paul Harrison
1. General psychology and Abnormal psychology - S.K. Mangal
2. A text book of Post Graduate Psychiatry - Neeraj Ahuja
3. Mind in Ayurveda and other Indian Traditions - A.R.V.Murthy

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| 4. Psychopathology in Indian medicine | - Satyapal Gupta |
| 5. Body- Mind-Spirit Integrative Medicine | - Prof. Ram Harsh Singh |
| 6. Rationale of Ayurveda Psychiatry | - Dr. A.R.V. Murthy |
| 7. Foundations of contemporary Yoga and Yoga Therapy | - Prof. Ram Harsh Singh |
| 8. Stress and its Management | - Dr. K.N. Udupa |
| 9. Concept of Mind | - Edited by Prof. C.R. Agnivesh, Kottakkal |
| 0. Kayachikitsa - Part 3 | - R. R. Pathak and Vidhyadhar Shukla |
| 1. Panchakarma Illustrated | - Prof. Shrinivasa Acharya |
| 2. Unified Dimensions of Ayurvedic Medicine | - Dr. J.S. Tripathi |
| 3. Essential Psychiatry | - Bhatia MS |
| 4. Sahassrayoga | - Nishteswar and
Vaidyanath |
| 1. Ayurveda and the Mind | - David Frawley |
| 2. Manasa Roga Vijnana | - Balakrishna |
| 3. Comprehensive Textbook of Psychiatry | - Kaplan and Sadock's |
| 4. Psychiatry for medical students | - Robert J Waldinger |
| 5. Introductions to Psychology | - Morgan / King. |

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D.-AYURVEDA PRELIMINARY**12.RASAYAN & VAJIKARAN**
(Rejuvenation & aphrodisia)**PAPER-II****Theory- 100 marks****PART A****50 marks**

1. Concept of Bhesaja, classification and understanding of Swasthasya Urjaskara and Artasya Roganut.
2. Etymology, derivation, definition, synonyms and scope of Rasayana, Vajikarana & Vrishya.
3. Historical aspects of Rasayana & Vajikarana
4. Rasayana-Vajikarana Arha & Anarha
5. Classification of Rasayana & Vajikarana.
6. Knowledge of Dosha, Dhatu & Mala.
7. Knowledge of Dhatu Parinama & Poshana Nyaya.
8. Detailed knowledge of Shukradhatu, Shukra, Retas, Veerya, Rupadravya, Prashastha Sukra Lakshana, Sukrasaara Purusha.
9. Knowledge of Sukravahasrotas, Sukradhara Kalaa.
0. Concept of Ojas.
1. Knowledge of Prakriti, Sara & Satwa.
2. Knowledge of concept of Agni: all components of Agni, levels of Agnimandya, Agnimandyajanya Vikara.
3. Principles of Panchakarma and application in Rasayana & Vajikarana.

PART B**50 marks**

1. Applied anatomical & physiological aspects of male reproductive system.
2. Applied aspects of physiology of puberty.
3. Spermatogenesis.
4. Basics of genetics. Bija and its components.
5. Applied aspects of reproductive endocrinology.
6. Semen formation, knowledge of various components of semen.
7. Basics of applied pharmacology related to Rasayana & Vajikarana.
8. Knowledge of metabolism and metabolic disorders.
9. Basics of Geriatrics.

PRACTICAL**100 marks****Contents:-**

1. Daily hospital duties in OPD, IPD and casualty.
2. Assessment of Saara – Shukrasaara and Shukra-Asaara –10 patients.
3. Rasayan and Vajikarana in geriatric patients – 10 patients.
4. Semen analysis- Retopariksha – 10 cases.

5. Uttarbasti – 5 cases.
6. Technique of psychosexual counseling.
7. Applied knowledge of assessment scales pertaining to Vajikarana /sexual functions.
8. Practical aspects of Panchakarma pertaining to Rasayana & Vajikarana.

Distribution of Marks (practical):

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1. Case records of patients-
(15 case of Rasayana; 10 cases of Vajikarana) 20 marks
2. Bedside clinical case taking-
Long case 20 marks
Short case 10 marks
3. Semen analysis and lab investigations 20 marks
4. Instruments and spotting 10 marks
4. Viva voce 20 marks

REFERENCE BOOKS:-

1. Relevant chapters from Brihatrayee and Laghutrayee and their commentaries
2. Panchakarma by Prof.H.S. Kasture
3. Kayachikitsa Vol I & II (Including Panchakarma, Rasayana & Vajikarana) by Prof. RH Singh
4. Illustrative Panchakarma by Dr Sreenivasa Acharya
5. Campbell-Walsh Urology by
Alan J. Wein MD PhD (Hon)
,
Louis R. Kavoussi MD
,
Andrew C. Novick MD
,
Alan W. Partin MD PhD
6. Clinical Endocrinology 2013 The (Clinical Medicine Series) by MD., CG Weber
7. Sex and Human Loving -Masters and Johnson
8. Diagnosis and treatment of functional Infertility by Lunenfeild B, Insler V, Glezerman M (eds) Black well scientific publications, Berlin.
9. Human reproduction conception and contraception, He fez ESE (ed) Harpar and Row publications, New York
0. Infertility- Practical guide for the physician, Hommond GM, Talbert LM (eds) Black well scientific publications, Oxford
1. Rasayana vajeekarana- Darpan by Om prakash Upadhyaya, Soi Balachandra yantralaya, Manavashram, Jaipur
2. Vatsayana kamasutra
3. Ananga ranga
4. Kelikutuhala
1. Infertility manual by kamini Rao
2. Advanced infertility management- Mehroo Hansotia
3. Endocrine and Reproductive systems – Sanders
8. Proceedings of WHO Symposium on advances in fertility regulation, Moscow: USSR
9. WHO Laboratory Manual for the examination of semen and sperm. Cambridge Uni. Press
0. WHO (1973) Reproductive function in the human male. World Health Organization, Geneva(Mannual)
1. WHO (1975): Scientific group on the epidemiology of infertility. The epidemiology of infertility, Geneva (Technical Report Series No. 5820 37 P)
2. Decision making in infertility; DeCherney AH, Polan ML, Lee RD, Boyers SP (Eds), JP Brothers, New Delhi
3. Handbook of sexual Dysfunction by Richard Balon, R. Taylor Segraves pub. By Taylor and Francis Group Florida
4. The Sperm Cell (Production, Maturation, Fertilization, Regeneration) by Christopher J. De Jonge, Christopher L.R. Barratt, Cambridge University Press
5. Kaplan and Saddocks Synopsis of Psychiatry, Lippincott Williams and Wilkins

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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 Dvidvidha 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 gastro-intestinal 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 Koshtha 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.

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PRACTICAL**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 taruby Gangadhara
- 2 Sushruta Samhita with the Nibhandha Samgraha commentary of Dalhana and Nyayachandrika panjika 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 Nampootheri and Dr. L. Mahadevan
18	Claiton's Physiotherapy	
19	Teddy's Physiotherapy	
20	Harrison's Principles of Internal Medicines	
21	Guyton's Physiology	

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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

PRACTICAL**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.
0. Ethics, law and Acts Related to gynaecology and obstetrics – laws of abortion and adoption.
1. Knowledge of contraception and sterilization procedures.
2. Pre-operative and post operative care in gynaecology and obstetrics.

PRACTICAL**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.

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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
 - 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
0. Text book of gynaecology - D C Dutta
1. Gabbe's normal and problem pregnancies.
2. Human embryology by Sandler.
3. Jeffcoat's principles of gynaecology
4. Te linde's gynaecological surgery.

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M.D.-AYURVEDA PRELIMINARY**15. KAUMARBHRITYA - BALA ROGA**
(Pediatrics)**PAPER-II****PART A****Theory- 100 marks****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.
0. National programs related to pediatrics.
 1. Childhood Samskara
 2. Principles of Child Psychology (Ayurvedic & modern concepts)

PART B**50 marks**

3. Concept of Bala Rasayana and its application in physical and mental health of children.
4. Concept of Vyadhi-Kshamatva avam Vardhanopaya. Concept of immunity and immune enhancing measures including immunization.
5. Concept of Dhupana and Raksha karma and their clinical application in pediatric practice
6. 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.
7. 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 Khandra, Krimikuthara Rasa, Mugdha Rasa, Dantodbheda-Gadantaka Rasa, Rajanyadi Churna (Ashtanga Hridaya), Samvardhana Ghrita, Ashta Mangal Ghrita.
8. Methods of preparation of various specific Kalpana (e.g. Lehya, Syrup, drops etc.) according to needs of children.
9. Common instruments and their application in new born care and general pediatric practice.
0. Specific considerations in research methods related to Pediatrics.
 1. Regulatory laws related to child health management.

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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 Shastry
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.
0. Kaumarbhritya related references from Charaka Samhita, Sushruta Samhita Vagbhata etc.
1. Clinical Methods in Paediatrics by Meharban Singh
2. Pediatrics Emergencies by Meharban Singh
3. Essential Pediatrics O.P. Ghai
4. Text Book of Pediatrics Nelson
5. Care of New Born by Meharban Singh

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M.S.-AYURVEDA PRELIMINARY**16.SHALYA TANTRA – SAMANYA**
(General Surgery)**PAPER-II****Theory- 100 marks****PART A****50 marks**

1. Etymology and definition of Shalya Tantra.
2. Scope and importance of Shalya Tantra.
3. Study of Sushruta Samhita Sutra Sthana.
4. Study of modern surgical clinical methodology.
5. Applied anatomy, physiology and surgical pathology of common surgical conditions including relevant Ayurvedic aspect.
6. Applicability of Shat Kriyakala in the pathogenesis of surgical diseases.
7. Applicability of Prakriti in understanding the causes and role of treatment in surgical diseases.
8. Applicability of basic principles of Ayurveda in Rogi Pariksha (Trividha, Shadvidha, Ashtavidha and Dashavidha Pariksha) and latest investigations.
9. Concept of Rakta according to Sushruta.
0. Introduction of clinical and diagnostic methods in Shalya Tantra - X-rays, U.S.G., Endoscopies (for diagnostic and treatment purposes), MRI, CAT scanning and other recent diagnostic tools.
1. Concept and applicability of Sadhya-Asadhya (Prognosis) - Arishtha lakshana.
2. Knowledge of life saving drugs.
3. Emergency conditions and its management.
4. Diagnosis and management of Pranashtha Shalya.

PART B**50 marks**

- Yantra and Shastra – Surgical Instruments - Ancient and recent advances.
- Sterilization – methods and types.
- Basic knowledge of Sangyahan – Anaesthesia - Types, methods, indications, contraindications, complications and its management.
- Concept of Trividha Karma – Purva, Pradhana and Pashchat.
- Ashtavidha Shastra Karmas.
- Bandhana Karma – Ancient and recent advances.
- Kshara Karma – Introduction, types, method of various preparations like Kshara, Kshara Varti, Kshara Pichu and applications.
- Kshara Sutra – Method of preparation, standardization and applications.
- Agnikarma – Introduction, types and applications.
- Raktamokshana – Introduction, types and applications.
- Application of Panchakarma therapy in surgical practice.
- Scope of Pathya-Apathya in the management of surgical diseases.

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PRACTICAL**100 marks****Content:-**

1. Hospital duties in OPD, IPD, OT and casualty
2. Case record – 25 cases
3. Surgical cases - observation/performing- 10 cases
4. Knowledge of instruments required in surgical 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 25 Patients in detail	20 marks
2. Bedside clinical case taking- Long case	20 marks
Short case	10 marks
3. Identification of instruments, X-ray etc	15 marks
4. Medical procedures	15 marks
5. Viva voce	20 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
0. Sushruti - Dr. Ram Nath Dwivedi
1. Clinical Shalya Vigyan - Dr. Akhilanand Sharma
2. Bhagna Chikitsa - Dr. Prabhakar Janardhan Deshpande
3. Kshara sutra management in anorectal ailments - Dr. S.K. Sharma, Dr. K.R.Sharma and Dr. Kulwant Singh.
4. Anorectal diseases in Ayurveda - Dr. Sizoria and Dr. Praveen Kumar Chowdary.
5. Adhunik Shalya Chikitsa Siddhanta - Dr. Katil Narshingham Udupa
6. Agnikarma Technology Innovation - Dr. P.D. Gupta
7. Shalya Tantra Ke Siddhant - Dr. K.K.Takral
8. Recent advances in the management of Arshas /Haemorrhoids - Dr. P. Hemantha Kumar
1. Arsha Evum Bhagander Mein sutra Avacharan- Vd. Kanak Prasad Vyas
2. Recent advances in Kshara Sutra - Dr. M. Bhaskar Rao
3. Leech application in Ayurveda - Dr. M. Bhaskar Rao
4. Kshara Sutra - Dr. S.N.Pathak
5. Shalya Shalaky Tantra - Vd. S.G. Joshi
6. Surgical ethics of Ayurveda - Dr. D.N. Pande
7. Text book of Surgery - Sabistan
8. Operative Surgery - Rob and smith

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1. Bailey and Love's Short Practice of Surgery - Norman.S. Williams, Charles.V. Mann and R.C.G. Russell
2. Fractures and Joint Injuries - Watson-Jones
3. Text books of Operative Surgery - Farquharsons'
4. Principles of Surgery - Schwartz
5. Emergency Surgery -Hamilton Bailey's
6. Surgical pathology - Willing Worth
1. Clinical methods in surgery - S. Das
2. Textbook of Operative Surgery - S. Das
3. Shalya Vigyan (Sachitra) - Anantram Sharma

- | | |
|---|---|
| 4. Anushastra Karma | - Dr. D.N. Pande |
| 5. Concept of Vrana is Ayurveda | - Dr. Lakshman Singh |
| 6. Significance for Poorva Karma in Surgical Patient | - Dr. Lakshman Singh |
| 7. Sangyahan Prakash | - Dr. D.N. Pande |
| 8. A concise Text Book of Surgery | - S. Das |
| 9. A manual on Clinical Surgery | - S. Das |
| 0. A System of Surgical Diagnosis | - T.N. Patel |
| 1. A Practical Guide to Operative Surgery | - S. Das |
| 2. Drugs and Equipment for Anaesthesia | - Arun kumar |
| 3. Manual of Surgical Instruments | - M.M. Kapur |
| 4. Ward Procedures | - Patel Mansukh. B |
| 5. Recent trends in the management of Arshas / Haemorrhoids | - Dr. P. Hemantha Kumar |
| 1. Primary Anaesthesia | - Maurice King |
| 2. Synopsis of Anaesthesia | - Lee |
| 3. Clinical Anatomy/ Surgical Anatomy | - John E.Skandalakis |
| 4. Surgical Instruments of the Hindus | - Girindharnath Mukopadyay |
| 5. Outline of Orthopedics | - John Crawford Adams and David Hamblen. L |
| 6. Outline of Fracture | - John Crawford Adams |
| 7. Recent trends in the management of Bhagandara / Fistula-in-ano | - Dr. P. Hemantha Kumar |
| 8. Principles and Practice of Agnikarma | - Dr. Anand Kumar and Dr. Kanchan Shekokar. |
| 9. Manipal Manual of Surgery | - Dr. Rajgopal Shenoy |

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M.S.-AYURVEDA PRELIMINARY**17.SHALYA - KSHARA KARMA AVUM ANUSHAstra KARMA
(Para Surgical Procedure including Minimal invasive Surgery)****PAPER-II****Theory- 100 marks****PART A****50 marks**

1. Etymology and definition of Shalya Tantra.
2. Scope and Importance of Shalya Tantra.
3. Study of Sushrut Samhita Sutra Sthana 1- 46 chapters.
4. Study of modern surgical clinical methodology.
5. Applied anatomy, physiology and surgical pathology of common surgical conditions including relevant Ayurvedic aspect.
6. Applicability of Shat Kriyakala in the pathogenesis of surgical diseases.
7. Applicability of Prakriti in understanding the causes and role of treatment in surgical diseases.
8. Applicability of basic principles of Ayurveda in Rogi Pariksha (Trividha, Shadvidha, Ashtavidha and Dashavidha Pariksha) and latest investigations.
9. Concept of Rakta according to Sushruta.
10. Introduction of clinical and diagnostic methods in Shalya Tantra - X-rays, U.S.G., Endoscopies (for diagnostic and treatment purposes), MRI, CAT scanning and other recent diagnostic tools.
11. Concept and applicability of Sadhya-Asadhya- Prognosis – Arishtha Lakshana.
12. Knowledge of life saving drugs.
13. Emergency conditions and its management.
14. Diagnosis and management of Pranastha Shalya.

PART B**50 marks**

1. Yantra and Shastra – Surgical Instruments - Ancient and recent advances.
2. Sterilization – methods and types.
3. Basic knowledge of Sangyahan – Anaesthesia - Types, methods, indications, contraindications, complications and its management.
4. Concept of Trividha Karma – Purva, Pradhana and Pashchat.
5. Ashtavidha Shastra Karmas.

6. Bandhana Karma – Ancient and recent advances.
7. Kshara Karma – Introduction, types, method of various preparations like Kshara, Kshara Varti, Kshara Pichu and applications.
8. Kshara Sutra – Method of preparation, standardization and applications.
9. Agnikarma – Introduction, types and applications.
10. Raktamokshana – Introduction, types and applications.
11. Application of Panchakarma therapy in surgical practice.
12. Scope of Pathya-Apathya in the management of surgical diseases.

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PRACTICAL

100 marks

Content :-

1. Hospital duties in OPD, IPD, OT and casualty
2. Case record – 25 cases
3. Parasurgical cases - observation/performing- 10 cases
4. Knowledge of instruments required in parasurgical practices.
5. Ayurvedic diagnostic and therapeutic procedures.
6. Fluid therapy and blood transfusion.
7. Pre-operative, operative and post operative procedures.

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. Identification of instruments, X-ray etc. | 15 marks |
| 4. Medical procedures | 15 marks |
| 5. Viva voce | 20 marks |

REFERENCE BOOKS :-

- Sushruta Samhita
- Ashtanga Sangraha
- Ashtanga Hridaya
- Charaka Samhita
- The Surgical instruments of the Hindus - Girindranath Mukhopadhyaya
- Shalya Tantra Samuchchaya - Pandit Ramadesh Sharma
- Shalya Vigyan (Part 1-2) - Dr. Surendra Kumar Sharma
- Shalya Samanvaya (Part 1-2) - Vd. Anantaram Sharma
- Shalya Pradeepika - Dr. Mukund Swaroop Verma
- Sushruti - Dr. Ram Nath Dwivedi
- Clinical Shalya Vigyan - Dr. Akhilanand Sharma
- Bhagna Chikitsa - Dr. Prabhakar Janardhan Deshpande
- Kshara sutra management in anorectal ailments and Dr. Kulwant Singh - Dr. S.K. Sharma, Dr. K.R.Sharma
- Anorectal diseases in Ayurveda - Dr. Sizoria and Dr. Praveen Kumar Chowdary.
- Adhunka Shalya Chikitsa Siddanta - Dr. Katil Narshingham Udupa
- Agnikarma Technology Innovation - Dr. P.D. Gupta
- Shalya Tantra Ke Siddhant - Dr. K.K.Takral
- Recent advances in the management of - Dr. P. Hemantha Kumar
- Arshas / Haemorrhoids
- Arsha Evum Bhagander Mein sutra Avacharan - Vd. Kanak Prasad Vyas
- Recent advances in Kshara Sutra - Dr. M. Bhaskar Rao
- Leech application in Ayurveda - Dr. M. Bhaskar Rao
- Kshara Sutra - Dr. S.N.Pathak
- Shalya Shalaky Tantra - Vd. S.G. Joshi
- Surgical ethics of Ayurveda - Dr. D.N. Pande
- Text book of Surgery - Sabistan
- Operative Surgery - Rob and smith

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- | | |
|--|--|
| 1. Bailey and Love's Short Practice of Surgery | - Norman.S. Williams, Charles.V. Mann and R.C.G. Russell |
| 2. Fractures and Joint Injuries | - Watson-Jones |
| 3. Text books of Operative Surgery | - Farquharsons' |
| 4. Principles of Surgery | - Schwartz |
| 5. Emergency Surgery | -Hamilton Bailey's |
| 6. Surgical pathology | - Willing Worth |
| 7. Clinical methods in surgery | - S. Das |
| 8. Textbook of Operative Surgery | - S. Das |
| 9. Shalya Vigyan (Sachitra) | - Anantram Sharma |
| 0. Anushastra Karma | - Dr. D.N. Pande |
| 1. Concept of Vrana is Ayurveda | - Dr. Lakshman Singh |
| 2. Significance for Poorva Karma in Surgical Patient | - Dr. Lakshman Singh |
| 3. Sangyahan Prakash | -Dr. D.N. Pande |
| 4. A concise Text Book of Surgery | - S. Das |
| 5. A manual on Clinical Surgery | - S. Das |
| 6. A System of Surgical Diagnosis | - T.N. Patel |
| 7. A Practical Guide to Operative Surgery | - S. Das |
| 8. Drugs and Equipment for Anaesthesia | - Arun kumar |
| 9. Manual of Surgical Instruments | - M.M. Kapur |
| 0. Ward Procedures | - Patel Mansukh. B |
| 1. Recent trends in the management of | - Dr. P. Hemantha Kumar |
| 2. Arshas / Haemorrhoids | |
| 3. Primary Anaesthesia | - Maurice King |
| 4. Synopsis of Anaesthesia | - Lee |
| 5. Clinical Anatomy/ Surgical Anatomy | - John E.Skandalakis |
| 6. Surgical Instruments of the Hindus | - Girindharnath Mukopadyay |
| 7. Outline of Orthopedics | - John Crawford Adams and David |
| 8. Hamblen. L | |
| 9. Outline of Fracture | - John Crawford Adams |
| 0. Recent trends in the management of | - Dr. P. Hemantha Kumar |
| 1. Bhagandara / Fistula-in-ano | |
| 2. Principles and Practice of Agnikarma | - Dr. Anand Kumar and |
| 3. Dr. Kanchan Shekokar. | |
| 4. Manipal Manual of Surgery | - Dr. Rajgopal Shenoy |

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M.S.-AYURVEDA PRELIMINARY**18.ASTHI SANDHI AND MARMAGAT ROGA**
(Orthopedics and management of vital points)**PAPER II****Theory- 100 marks****PART A****50 marks**

1. Etymology and definition of Shalya and Shalya Tantra. Scope and importance of Shalya Tantra.
2. Dosha, Dhatu, Mala and Sarotas vgyan.
3. Knowledge of ancient and recent Yantra and Shastra – Surgical instruments. Ashtavidha Shastra Karma and their application in surgical practice.
4. Trividha Karma – Purva, Pradhan and Pashchat Karma. Modern principles of pre-operative and post-operative care. Clinical application of Purva and Pashchat Karma in modern surgery.
5. Asepsis and Antisepsis. Sterilisation (Nirjantukikarana)-methods and types. O.T. Fumigation.
6. Surgical infections – Sepsis, Cellulitis, Erysepelas, Tetanus, Gas gangrene, Hepatitis, HIV- AIDS etc. Handling and care of HIV and Hepatitis positive patients. Knowledge of conditions like Bacteraemia, Septicaemia, Toxaemia and Pyaemia

7. Concept of Shock - Its varieties etiopathogenesis and management – Cardio-pulmonary resuscitation (CPR), Endo-tracheal intubation and Tracheostomy.
8. Drug reactions and Anaphylaxis – Management.
9. Sushruta's concept of Rakta and Raktasrava – Haemorrhage – Types, Patho-physiology, clinical features and management. Concept of Raktastambhana – Haemostasis. Blood transfusion – Indications, blood groups, components, compatibility and complications with management.
0. Shatkriyakaala and its applicability in the pathogenesis of surgical diseases.
 1. Knowledge of Prakriti and its impact on pathogenesis, clinical features and treatment of orthopedic diseases.
 2. Rogi and Rog Pariksha (Trividha, Shadvidha, Ashtavidha and Dashavidha Pariksha) and its application in the diagnosis of diseases.
 3. Vranashopha and Inflammation, Nadivrana and Sinuses / Fistulae, Vidradhi and abscesses.
 4. Swellings – Arbuda and Tumours, Granthi and Cysts.
 5. Anu Shastra Karma like Ksharakarma, Agnikarma, Raktavasechana etc. and their application in orthopedic practice.
 6. Pranasha Shalya Vigyan.
 7. Fluid, Electrolyte, Acid Base Balance and Nutrition
 1. Introduction to physiology of fluids and electrolytes.
 2. Dehydration and over hydration.
 3. Specific electrolyte losses, symptomatology and management of Acidosis, Alkalosis and Acid-Base balance.
 4. Various replacement fluids in surgery, mode of administration and complications.
 5. Nutrition – pre-operative, peri-operative and post-operative.
 6. Intravenous fluid therapy.
 8. Knowledge of imaging and diagnostic techniques – X-ray, Ultra Sonography, CT scan, MRI and recent advances.

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PART B

50 marks

1. Scope of Asthi Sandhi evam Marmaghata Roga specialty and its importance. Historical aspect of Ayurvedic and modern orthopedics and Marma.
2. Marma Sharira – Etymological derivation, definition, basic concept of Marma, origin, classification, Pramana. Consequences of Marmaghata and their management.
3. Vrana Vigyan – Etiology, classification, symptomatology, prognosis and management principles of Nija and Sadyo Vrana. Concept of Shashti Upakrama. Seevana and Suturing, Vrana Bandhana and Bandaging. Modern concept of Wounds and Ulcers, their classification and management principles. Recent wound closure techniques, suture materials, dressing, bandaging materials and techniques. Mechanism of wound healing.
4. Bhagna - Etiology, classification, general management principles, complications and prognosis of the skeletal injuries according to Ayurved and Modern aspect. Mechanism of bone healing.
5. Itrathadagha and Burns - Etiology, classification, symptomatology, prognosis and management principles. Knowledge of Burns Shock, its prevention and management principles.
6. Principles of initial care of injured person. Handling of poly trauma patient. ARDS (Acute Respiratory Distress Syndrome), Crush Syndrome, Thromboembolism, Fat Embolism syndrome and their management.
7. Systemic response to injury.
8. Pharmacology of emergency drugs, antibiotics, NSAIDs, Opiates, central muscle relaxants.
9. Anesthesiology related to Orthopedics. Pharmacology of local anesthetics and vasoconstrictors. Knowledge of local anesthesia techniques like local anesthetic infiltration, various blocks (e.g. ring block, nerve block, plexus block, field block, hematoma block, costal block etc.) Spinal and epidural blocks.
0. Medico-legal aspects in orthopedics. Knowledge of documentation and record keeping.

PRACTICAL

100 marks

Contents:

- Clinical history taking and examination of orthopedic patient.
- Knowledge of diagnostic and therapeutic principles of Shalya Tantra.
- Identification and functioning of surgical and orthopedic instruments.
- Practical knowledge of documentation and record keeping.
- Practical knowledge of Anu-Shastra Karma.
- Practical Knowledge of Seevan Karma and suturing and Vrana Bandhana and bandaging.
- Knowledge about the management of orthopedic emergencies.
- Knowledge of Purva Karma and Pashchat Karma.
- Practical knowledge of sterilization and OT fumigation.
- Knowledge of handling of medico legal cases and issuing MLCs and other certificates.

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Distribution of Marks (practical):

1. Case Records (25 cases)	20marks
2. Bed Side examination-	
▪ Patient History (Long case)	20 marks
▪ Patient History (Short case)	10 marks
3. Instruments / equipments / models identification	15 marks
4. Medical procedures	15 marks
5. Viva Voce	20 marks

REFERENCE BOOKS-:

1	Sushruta Samhita	Relevant parts
2	Sushruta Samhita (Dalhana commentary)	Relevant parts
3	Charak samhita	Relevant parts
4	Ashtang Hridaya	Relevant parts
5	Ashtang Sangraha	Relevant parts
6	Saushruti	Ramanath Dwivedi
7	Watson and Jones – Fracture and Joint Injuries	J.N. Wilson
8	Practical Fracture Treatment	R. McRae
9	Clinical Orthopedic Examination	R. McRae
10	Apley's System of Orthopedics	Apley Louis Solomon
11	A Concise Text Book of Surgery	S. Das
12	Pye's Surgical Handicraft	
13	Clinical Methods in Surgery	Sriram Bhatt
14	Clinical Methods in Surgery	S. Das
15	Operative Surgery	S. Das
16	Schwartz Principles of Surgery	
17	Bailey and Love's short practice of Surgery	

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M.D.-AYURVEDA PRELIMINARY**19. SANGYAHARAN**
(Anesthesiology)**PAPER-II****Theory 100 marks****PART-A****50 marks**

1. Shisyopanayana, Vishikhanupravesha, Agropaharaniay and Shatkriyakala.
2. Etymology and definition of Sangyaharan and its scope, application and importance in surgical practice.
3. Fundamentals of Ayurveda in relation to Sangyaharan- Panchmahabhuta, Prakriti, Dosha, Dhatu and Mala.
4. Concept of Vedana (pain), pathophysiology and modalities of pain management in Ayurveda.
5. Agni Karma in pain management.
6. Introduction, fundamentals, importance, types, methods of application, duration, instruments, equipments and various materials used for Agni Karma. The indications, contraindications, complications of Agni karma and their management.
7. Raktamokshana (blood letting) in pain management.
8. Introduction, fundamentals, importance, types, methods of application, duration, instruments, equipments and various materials used for Raktamokshana. Indications, contraindications, complications of Raktamokshana and their management.
9. Causes of vitiation of Rakta Dosha and Rakta Dushtijanya Vikaras.
0. Types of Raktamokshana and determination of appropriate amount of blood loss during Raktamokshana according to diseases and patients.
 1. Methods of Raktastambhana.
 2. Leech Therapy in pain management. Varieties, importance, methods of applications, indications, contraindications, complications and their management and method of maintenance of leeches.
 3. Trividha Karma – Purva karma (preanaesthetic management), Pradhana karma(induction and maintenance) and Pashchat Karma (post anesthetic care).
 4. Concept of Marma, their importance and application in Sangyaharan.
 5. Concept of palliative care and its role in terminally ill patient care in Ayurveda.

PART-B**50 marks****History of anesthesia.**

1. Molecular basis of anesthesia, cell physiology and body fluids.
2. Respiratory system: Anatomy of the upper airway – nose, pharynx, larynx, tracheobronchial segment, mechanics of respiration, physiology of respiration, ventilation, perfusion matching, lung volumes and capacities, pulmonary gas exchange and transport of gases, lung function tests – including laboratory tests for obstructive and restrictive lung diseases.
3. Cardiovascular system: Anatomy and physiology of heart and autonomic nervous system, maintenance of blood pressure, systemic circulation, pulmonary circulation, microcirculation and lymphatics.
4. Nervous system: Anatomy and physiology of central nervous system, cranial nerves, nerve plexuses, spinal column. Physiology of sleep, sleep disorders, physiology of pain, physiology of neuromuscular junction, autonomic nervous system – sympathetic and parasympathetic.
5. Endocrinology as related to anesthesia: Function of anterior and posterior pituitary and their dysfunction, hyper and hypothyroidism, hyper and hypopara-thyroidism, diabetes mellitus – hypo and hyperglycemia, ketoacidosis. Adrenal cortex and medulla functions and disorders.
6. Pathophysiology of renal failure, renal function tests.

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9. Pathophysiology of hepatic failure, liver function tests.
0. Shock and its management.
 1. Fluid and electrolyte, acid base balance, ABG interpretation and water intoxication
 2. Thermoregulation.
 3. Pre anesthetic assessment and permedication.
 4. Physics applied to anesthesia: Gas laws, ventilators & monitors, flow meters, vaporizers, breathing systems, carbon-dioxide absorbers, medical gas supply, suction machines, electrical fire & explosion hazards, pollution in O.T.
 5. Sepsis, asepsis and sterilization- methods, types of sterilization of machine and equipments with special reference to tetanus, hepatitis, HIV-AIDS etc. O.T. fumigation.
 6. Intravenous fluids, crystalloid & colloids, their indications, contra indications, complications and their management.
 7. Blood transfusion-indication, contra indications, complications and their management, component therapy.

8. Medicolegal and ethical aspects in research and patient care. Medico legal issues, understanding the implications of acts of omission and profession, National Health policy - implications in a medico legal case like accidents, negligence, assaults etc.
9. Anaesthesia documentation and record keeping.

PRACTICAL**100 marks****Contents:**

1. Anesthetic Drugs.
2. Demonstration of induction of Anesthesia.
3. Preanaesthetic assessment of patients.
4. Post anesthesia management.
5. Complications of anesthesia and their management.
6. Identification of instruments and knowledge of their use.

Distribution of marks (Practical)

- | | |
|--|------------|
| 1. Anesthesia documentation & record keeping | - 20 Marks |
| 2. Bedside clinical case taking | |
| 3. Long Case | - 20 Marks |
| 4. Short Case | - 10 Marks |
| 5. Procedure | - 15 Marks |
| 6. Identification of instruments & Spotting | - 15 Marks |
| 7. Viva-voce | - 20 Marks |

REFERENCE BOOKS

- | | |
|---|------------------------|
| 1. Sushruta Samhita | |
| 2. Charka samhita | |
| 3. Ashtang Hridaya | |
| 4. Practice of Anesthesia | - Churchill Davidson |
| 5. Miller's Anesthesia | - Ronald D Miller |
| 6. Synopsis of Anesthesia | - Alfred Lee |
| 7. Sangyahan Prakash | - Dr. D. N. Pande |
| 8. Agni karma-Technological Innovation | - Dr. P.D. Gupta |
| 9. Practice of Anesthesia and Resuscitation | - Dr. P.K. Gupta et al |
| 0. Essentials of Anesthesiology | - Prof. A.K. Paul |
| 1. Clinical Anesthesia | - Prof. A.K. Paul |
| 2. Anu Shastra karma | - Dr. D.N. Pande |
| 3. Textbook of Anesthesia | - Aitkenhead |
| 4. Anesthesia and co-existing disease | - Stoelting's |

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M.S.-AYURVEDA PRELIMINARY**20. SHALAKYA - NETRA ROGA**
(Ophthalmology)**PAPER-II****Theory- 100 marks****PART-A****50 marks**

1. Shalaky Tantra Parichaya, Itihas and Pradhanyam.
2. Netra Sharir and related Marmas
3. Study of Dosha, Dhatu, Mala and Srotas in context to Netra chikitsa.
4. Updated knowledge of Agropaharaniya in Netra chikitsa- incorporating sterilization, Sangyahanana (Anaesthesia).
5. Basic pharmacology of common drugs required in ocular diagnostic and therapeutic procedures.
6. Vrana Siddhanta-Trividha Shopha, Shuddha-Ashuddha Vrana, Vrana Srava, Vrana Bandha, Vranitopasana in context to Netra chikitsa.
7. Swasthavritta related to Netra.
8. Chaturvidha Chikitsa Siddhanta and Raktamokshana in Netra chikitsa.
9. Applied knowledge of various Kriyakalpas and other therapeutic procedures related to Netra chikitsa.
0. Role of Panchkarma in Netra chikitsa.
1. Netra Chikitsa Upayogi Vishishta Yoganam, Guna, Karma prayog gyanam of most common classical Yogas.

PART-B**50 marks**

- Applied anatomy and physiology of eye, its adnexa and visual pathway.
- Clinical methods of eye examination.

- Application of various aids and techniques in the examination of eye viz Tonometry, direct Ophthalmoscopy, Perimetry, Refraction and Slit Lamp examination with their interpretation.
- Fundamentals of optics and refraction.
- Applied aspects of Aetio-Pathogenesis, clinical features, prognostic and therapeutic principles in Netra Roga Chikitsa along with Pathya-Apathya and their contemporary knowledge.
- Common ocular emergencies and their management.
- Applied aspects of Yantra and Shastra in Netra Chikitsa along with modern ophthalmic surgical instruments and equipments.
- Knowledge of rules, regulations and medico legal aspects of ophthalmic practice including eye donation, eye banking and corneal grafting.
- Knowledge of handling of biomedical waste.

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PRACTICAL

100 marks

Contents:

1. Clinical posting in OPD/IPD/Kriyakalpa Kaksha & OT
2. Clinical case presentation (10 cases)
3. Case record (20 cases)
4. Hands on training in Kriyakalpa

Distribution of marks (practical):

1. Case Record - 20 Marks
2. Bed side examination
3. Long case - 20 Marks
4. Short case - 10 Marks
5. Kriyakalpa procedure - 15 Marks
6. Identification of specimens and Instruments - 15 Marks
7. Viva-voce - 20 Marks

REFERENCE BOOKS:-

- 1 Charka Samhita with commentaries
- 2 Sushrut Samhita and vagbhata with commentaries
- 3 Astanga hridaya and Astanga sangraha with commentaries
- 4 Madhava nidan with commentaries
- 5 Bhavaprakasha with commentaries
- 6 Sarangadhara Samhita with commentaries
- 7 Sahstrayoga Sangraha
- 8 Relevent part of Chakradhatta, Bhel Samhita, Harita Samhita
- 9 Shalaky Tantra - Ramanath Dwivedi
- 10 Shalaky Tantra - 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 Vitrous, Glaucoma and Hypotony - Duke Elder, St. Louis
- 15 A Text Book of Ophthalmology - Ahmed E.
- 16 A Text book of clinical ophthalmology - Dhanda
- 17 Modern Ophthalmology - Dutta, L.C. Jaypee Brothers
- 18 Manual of the Diseases of the Eye - May,C.and Worth,C.

Bailliere Tindal and Castell

- | | | |
|----|--|----------------------|
| 19 | Ophthalmology – Principles and Concepts
Mosby Co., St. Louis. | - Newell, F.W., C.V. |
| 20 | Ocular Differential Diagnosis
Lea and Febiger | - Roy Fedrick Hamptn |
| 21 | Clinical Ophthalmology
Company | - Smith, R.Vergheese |
| 22 | Abrahm Manual of Refraction | - Duke and Elder |
| 23 | Hand Book of ophthalmology | - B.M. Chaterjee |
| 24 | Hand Book of ophthalmology | - Khurana |
| 25 | Clinical ophthalmology | - Kanski |
| 26 | Parsons Diseases of Eye | |
| 27 | Stallard's Eye Surgery | |

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M.S.-AYURVEDA PRELIMINARY**21. SHALAKYA- DANTA AVUM MUKHA ROGA**
(Dentistry and Oral Disease)**PAPER-II****Theory- 100 marks****PART-A****marks 50**

1. Shalaky Tantra Parichaya, Itihas avum Pradhanyam.
2. Mukhasharir.
3. Study of Dosha, Dhatu, Mala and Srotas in context to Danta and Mukha Roga.
4. Agropaharaniya in Danta and Mukha Roga incorporating sterilization, Sangyahanana and diagnostic and therapeutic pharmacological agents.
5. Vrana Siddhanta-Trividha Shopha, Shuddha-Dushta Vrana, Vrana Bandha and Vranitopasana in relation to Danta and Mukha Roga.
6. Swasthavritta related to Danta and Mukha Roga.
7. Chaturvidha Chikitsopaya (Bheshaja-Shastra-Kshara-Agni) Siddhanta and Raktamokshana related to Danta and Mukha Roga.
8. Applied knowledge of various Kriyakalpa and other therapeutic procedures related to Danta and Mukha Roga.
9. Role of Panchkarma in Danta and Mukha Roga.
0. Mukha and Danta Chikitsopayogi Aushadha Kalpana Parijnanam e.g. Dashana Samskara Manjana, Shwetamanjana, Vajradanta Manjana, Khadiradi Vati, Irimedadi Taila, Peetaka Churna, Kalaka Churna, Nimbadi Churna and Bhadramustadi Vati.

PART-B**50 marks**

1. Applied orodental anatomy and physiology.
2. Clinical methods adopted in orodental practices.
3. Knowledge of advanced diagnostic techniques, equipments and tests of importance in orodental practices with their interpretations.
4. Classification, aetiopathogenesis, clinical features and therapeutics of Oshtha, Danta, Dantamula, Jihva, Talu and Sarvasar Mukharogas in the light of modern knowledge.
5. Basics of Sandhana Vidhi in Mukha and Danta Roga.
6. Applied aspect of Dysphagia, Manyastambha, Hanumoksha, Apachi (Cervical Lymphadenopathy) and Herpes.
7. Handling of biomedical waste.

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PRACTICAL**100 marks****Contents:**

1. Clinical posting in OPD, IPD, Kriyakalpa Kaksha and OT.
2. Clinical case presentation (10 cases).
3. Case record (20 cases).
4. Hands on training in Kriyakalpa.

Distribution of marks (practical):

1. Case Record - 20 Marks
2. Bed side examination
3. Long case - 20 Marks
4. Short case - 10 Marks
5. Kriyakalpa procedure - 15 Marks
6. Identification of specimens, radiograph and instruments - 15 Marks
7. Viva-voce - 20 Marks

Reference Books

1. Sushrut Samhita - -Dalhana
2. Useful Portion of Charak Samhita-Ashtang Samgraha -Ashtang Hridaya
3. Useful portion of Laghutrayi related to Danta and Mukha Roga
4. Shalakya Vijnanam - Ravindra Chandra Chaudhary
5. Nimi Tantra - Ramanath Dwivedi
4. Dental Anatomy Histology - Dr. S.I. Bhalajhi
5. Essentials of Preventive and Community Dentistry -Dr. Soben Peter
6. Complete Denture Prosthodontics - Dr. J.J. Manappallil
7. Orthodontics the Art and Science - Dr. S.I. Bhalajhi
8. Text book of Pediatric Dentistry - Dr. S.G. Damle
9. Text book of Oral and Maxillofacial surgery -Dr. Vinod Kapoor
10. Clinical Periodontology - Dr. B.R.R. Varma
11. Anatomy for Dental Students - Inderveer Singh
12. Clinical Periodontology - Carranza , Newman
13. Operative Dentistry - M A Marzouk
14. Oral and maxillofacial surgery secrets - A.Omar Abubaker
15. Killey and Kay's Outline of Oral Surgery - Girdon R Seward
16. Clinical Dentistry - Ivor G. Chestnut , John Gibson
17. Synopsis of Oral Pathology - S N Bhaskar
18. Oral Pathology - Stone

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M.S.-AYURVEDA PRELIMINARY**22. SHALAKYA- SHIRO-NASA- KARNA- AVUM KANTHA ROGA**
(ENT & HEAD & Neck Disease)**PRACTICAL****Theory- 100 marks****PART A****50 marks**

1. Shalakya Tantra Parichaya, Itihas and 'Pradhanya'. Establishment of 'superiority of Shiras' among all the organs. Determination and importance of the verse 'Nasa hi Shirso Dvaram'.
2. Shiro-Nasa- Karna- Avum Kantha Shariram and knowledge of related Marmas.
3. Study of Dosha- Dhatu-Mala and Srotas in context of Shiro-Nasa- Karna- Avum Kantha Chikitsa.
4. Agropaharaniya in Shiro-Nasa- Karna- Avum Kantha Chikitsa including sterilization and anesthesia.
5. Basic pharmacology of common modern drugs used in diagnostic and therapeutic procedures related to Shiro-Nasa- Karna- Avum Kantha Chikitsa.

6. Vrana Siddhanta- Trividha Shopha, Shuddha- Dushta Vrana, Vrana Bandha and Vranitopasan in context of Shiro-Nasa- Karna- Avum Kantha Chikitsa.
7. Swasthavritta related to Shiro-Nasa- Karna- Avum Kantha.
8. Chaturvidha Chikitsopaya (Bheshaja- Shastra-Kshar -Agni) and Raktamokshan related to Shiro-Nasa- Karna- Evum Kantha Chikitsa.
9. Applied knowledge of various therapeutic modalities like Shirobasti, Shirodhara, Shirovirechana, Nasya, Karna Pooran, Karna Dhoopan, Kaval, Gandusha etc.
0. Role of Panchkarma in Shiro-Nasa- Karna- Avum Kantha Chikitsa.

PART B**50 marks**

1. **Shiras**- Applied anatomy and physiology of skull and intracranial contents. Clinical methods and knowledge of common diagnostic equipments, procedures and their interpretation. Classification, etiopathogenesis, clinical features, prognostic considerations and therapeutics of Shiras and Kapaal Rogas in the light of modern knowledge.
2. **Nasa** - Applied anatomy and physiology of nose and paranasal sinuses. Clinical methods and knowledge of common nasal diagnostic equipments, procedures and their interpretation. Classification, etiopathogenesis, clinical features, prognostic considerations and therapeutics of Nasa Rogas in the light of modern knowledge.
3. **Karna**- Applied anatomy and Physiology of ear and related structures. Clinical methods and knowledge of common aural diagnostic equipments, procedures and their interpretation. Classification, etiopathogenesis, clinical features, prognostic considerations and therapeutics of Karna Rogas in the light of modern knowledge.
4. **Kantha** - Applied anatomy and physiology of throat. Clinical methods and knowledge of common pharyngeal and laryngeal diagnostic equipments, procedures and their interpretation. Classification, etiopathogenesis, clinical features, prognostic considerations and therapeutics of Kanthagata Rogas in the light of modern knowledge.

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PRACTICAL**100 marks****Contents:**

1. Clinical posting in OPD, IPD, Kriyakalpa Kaksha and OT.
2. Clinical case presentation (10 cases).
3. Case record (20 cases).
4. Hands on training in Kriyakalpa.

Distribution of marks (practical):

- | | |
|--|------------|
| 1. Case Record | - 20 Marks |
| 2. Bed side examination | |
| A. Long case | - 20 Marks |
| B. Short case | - 10 Marks |
| C. Kriyakalpa procedure | - 15 Marks |
| 3. Identification of specimens and Instruments | - 15 Marks |
| 4. Viva-voce | - 20 Marks |

REFERENCE BOOKS:-

1. Sushrut Samhita
2. Charak Samhita
3. Ashtang Hridaya
4. Ashtang Samgraha
5. Laghutrayi
6. Modern books related to ENT disorder
7. Diseases of Nose Throat and Ear - Bhargav Shah
8. Diseases of Nose Throat and Ear, Head and Neck EB Edr.
9. A Textbook of otorhinolaryngology - Scott Browns editions.
0. Text book of Ear Nose Throat diseases – Dhingra
1. Textbook on ENT – Mohd. Maqbool
2. Logan Turner's book on ENT
3. Ballengers text book of ENT
4. Kumin's text book of ENT
5. Rob Smith's book of ENT surgery
6. Paprella's book of ENT
7. Hazarika's text book on ENT
8. Books on examination of ENT
9. Audiology Anirwan Biswas
0. Kurt's Audiology

1. Books on Speech therapy