

M.D.-AYURVEDA

PRELIMINARY PAPER-I
RESEARCH METHODOLOGY AND MEDICAL STATISTICS

PART-A
RESEARCH METHODOLOGY

- 1 Introduction to Research**
 - A. Definition of the term research
 - B. Definition of the term anusandhan
 - C. Need of research in the field of Ayurveda

- 2 General guidelines and steps in the research process**
 - A. Selection of the research problem
 - B. Literature review: different methods (including computer database) with their advantages and limitations
 - C. Defining research problem and formulation of hypothesis
 - D. Defining general and specific objectives
 - E. Research design: observational and interventional, descriptive and analytical, preclinical and clinical, qualitative and quantitative
 - F. Sample design
 - G. Collection of the data
 - H. Analysis of data.
 - I. Generalization and interpretation, evaluation and assessment of hypothesis.
 - J. Ethical aspects related to human and animal experimentation.
 - K. Information about Institutional Ethics Committee (IEC) and Animal Ethics Committee (AEC) and their functions. Procedure to obtain clearance from respective committees, including filling up of the consent forms and information sheets and publication ethics.

- 3 Preparation of research proposals in different disciplines for submission to funding agencies taking EMR-AYUSH scheme as a model.**

- 4. Scientific writing and publication skills.**
 - a. Familiarization with publication guidelines- Journal specific and CONSORT guidelines.
 - b. Different types of referencing and bibliography.
 - c. Thesis/Dissertation: contents and structure
 - d. Research articles structuring: Introduction, Methods, Results and Discussions (IMRAD)

- 5 Classical Methods of Research. Tadvidya sambhasha, vadmarga and tantrayukti**
Concept of Pratyakshadi Pramana Pariksha, their types and application for Research in Ayurveda.

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

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

7. Different fields of Research in Ayurveda

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

8. Literary Research-

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

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

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

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

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

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

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

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

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

12. Clinical research:

Introduction to Clinical Research Methodology identifying the priority areas of Ayurveda

Basic knowledge of the following:-

- Observational and Interventional studies
- Descriptive & Analytical studies
- Longitudinal & Cross sectional studies
- Prospective & Retrospectives studies
- Cohort studies

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

Errors and bias in research.

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

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

Survey studies -

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

Discussion.

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

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

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

PART-B

40 marks

MEDICAL STATISTICS

Teaching hours: 80

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

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

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

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

Type of series – Simple, Continuous and Discrete

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

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

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

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

7 **Fundamentals of testing of hypotheses:**

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

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

8 **Univariate analysis of categorical data:**

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

9 Parametric tests:

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

10 Non parametric methods:

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

11 Correlation and regression analysis:

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

12 Sampling and Sample size computation for Ayurvedic research:

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

13 Vital statistics and Demography:

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

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

PRACTICAL

100 marks

I. RESEARCH METHODOLOGY

Teaching hours 120

PRACTICAL NAME

1 Pharmaceutical Chemistry

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

2 Awareness of Chromatographic Techniques

Demonstration or Video clips of following:

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

4 Pharmacognosy

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

Blood collection by orbital plexuses puncturing.

Techniques of anesthesia and euthanasia.

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

5 Pharmacology and toxicology

Familiarization and demonstration of techniques related to pharmacology and toxicology

6 Biochemistry (Clinical)

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

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

7 Clinical Pathology

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

8 Imaging Sciences

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

9 Clinical protocol development

II. MEDICAL STATISTICS

Practical hours:20

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

Distribution of marks (practical):

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

REFERENCE BOOKS:-

Pharmacognosy:

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2. Drug Survey by Mayaram Uniyal
3. Fahn A (1981). Plant Anatomy 3rd Edition Pergamon Press, Oxford
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7. Tyler V C., Brady, L R., and Robers J E., Pharmacognosy, Lea and Febiger, Philadelphia.
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11. Wallis T E., Text Book of Pharmacognosy, J & A Churchill Limited, London.
12. WHO guidelines on good agricultural and collection practices- (GACP) for medicinal plants (2003). World Health Organization- Geneva.
13. WHO monographs on selected medicinal plants (1999)—Vol. 1. 1.Plants, Medicinal 2.Herbs 3.Traditional medicine. ISBN 92 4 154517 8. WHO Geneva.

Pharmaceutical chemistry, quality control and drug standardization:

1. Ayurvedic Pharmacopoeia of India. Part I- volume 1 to 8 and Part II- volume 1 to 3. Ministry of Health and Family Welfare. Controller of Publication. Govt of India. New Delhi.
2. Brain, KR and Turner, TD. (1975). The Practical Evaluation Phytopharmaceuticals. Wright Sciencetechnica, 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.
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8. Laboratory Guide for- The Analysis of Ayurved and Siddha Formulations – CCRAS, New Delhi.
9. Mahadik KR, Bothara K G. Principles of Chromatography by, 1st edition, Nirali Prakashan.
10. Qadry JS and Qadry S Z., Text book of Inorganic Pharmaceutical and Medicinal Chemistry, B. S.Shah Prakashan, Ahmedabad.
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12. Rangari V.D., Pharmacognosy & Phytochemistry, Vol I, II, Career Publication,
13. Sharma BK. Instrumental Methods of Chemical Analysis by, Goel Publishing House.
14. Srivastav VK and Shrivastav KK. Introduction to Chromatography (Theory and Practice)
15. Stahl E., Thin Layer Chromatography - A Laboratory Handbook, Springer Verlag, Berlin.
16. Sukhdev Swami Handa, Suman Preet Singh Khanuja, Gennaro Longo and Dev Dutt Rakesh (2008). Extraction Technologies for Medicinal and Aromatic Plants -INTERNATIONAL CENTRE FOR SCIENCE AND HIGH TECHNOLOGY- Trieste,

Biochemistry and Laboratory techniques:

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

4. David Sultan (2003). Text book of Radiology and Imaging, Vol-1, 7th Edition.
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6. Harold Varley. Practical Clinical Bio-chemistry
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12. Text book of Radiology and Imaging, Vol-1, David Sultan, 7th Edition. 2003.

Research methodology:

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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.
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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.
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11. Petter Laake, Haakon Breien Benestad and Bjørn Reino Olsen. (2007). *Research Methodology in the Medical and Biological sciences*. Academic Press is an imprint of Elsevier, 84 Theobald's Road, London WC1X 8RR, UK. ISBN: 978-0-12-373874-5
12. Relevant portions of Ayurvedic Samhitas and other texts

Drug research and development:

1. RICK NG, (2009). *DRUGS- from discovery to approval*. John Wiley & Sons, Inc., Hoboken, New Jersey
2. Research guidelines for evaluating the safety and efficacy of herbal medicines. (1993). . WHO- (Regional Office for the Western Pacific – Manila) ISBN 92 9061 110 3 (NLM Classification: WB925).
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5. Natural products isolation. (2006) 2nd ed. / edited by Satyajit D. Sarker, Zahid Latif, Alexander I. Gray. (Methods in biotechnology; 20). Includes bibliographical references and

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6. Gazette Extraordinary Part- II-Section 3 - Sub section (i) December 2008. Govt of India. AYUSH Guidelines on safety studies- Rule 170 of Drugs and Cosmetics Act.
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8. OECD Guideline for the Testing of Chemicals – Repeated Dose 90-day Oral Toxicity Study in Rodents, 408, 1998. <http://browse.oecdbookshop.org/oecd/pdfs/free/9740801e.pdf> (latest version)
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12. *Bombay.*
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14. Kulkarni S.K.: Hand Book of Experimental Pharmacology, *Vallabh Prakashan, New Delhi*
15. Ravindran R.: X-Pharm (Software), Indian Journal of Pharmacology, *JIPMER, Pondicherry.*

Biotechnology and Bio-informatics:

1. Angela M. Meireles A (2009). Extracting Bioactive compounds for food products. Theory and applications. CRC- Press Taylor and Francis Group.
2. Bergeron BP 2002 Bioinformatics Computing 1st Edition, Prentice Hall
3. Chikhale, N.J. and Virendra Gomase, Bioinformatics- Theory and Practice, Publisher: Himalaya Publication House, India; 1 edition (July, 2007) ISBN-13: 978-81-8318-831-9
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5. Satyanarayana, U.: Biotechnology, Books and Allied (P) Ltd, Kolkata, 2005
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8. <http://www.zygogen.com>.
9. <http://www.dsir.nic.in/reports/tifp/database/metallo.pdf>.
10. www.consort-statement.org
11. www.strobe-statement.org
12. www.icmr.nic.in

Clinical Evaluation:

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2. Ethical Guidelines for Biomedical Research on Human subjects. (2000). Indian Council of Medical Research- New Delhi.
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Medical Statistics:

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

M.D.-AYURVEDA PRELIMINARY
AGADATANTRA AVUM VIDHI VAIDYAKA (Toxicology & Forensic Medicine)
PAPER-II

Theory 100 marks

PART-A 50 marks

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

PART-B 50 marks

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

PRACTICAL 100 marks

Contents:

Clinical Postings

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

Distribution of marks (Practical)

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

REFERENCE BOOKS:

1. Useful Portion of Charak-Sushrut-Vagbhata
2. Dravyaguna Vigyan - Acharya Yadavji
3. 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. Aushadigunadharm Shastra - PtGangadhara Shastri Gune
10. Rasendracintamani
11. Rasaratna samuchhaya
12. Vishavigyan - Dr. Krishna Kumar
13. Related matter of Kautilya Artha Shastra
14. Harmekhlatantra
15. Anupana manjari
16. Ayurvedprakash
17. System of clinical Medicine - Savil
18. Forensic Pharmacy -B.M. Mhithai
19. Hand book of Forensic Medicine and toxicology - Dr. P.V. Chadha
20. Viva Forensic Medicine and toxicology - L.C. Gupta
21. Forensic Medicine and Ethics- J.P. Narena
22. Modi's Medical Jurisprudence and Toxicology
23. The essentials of forensic medicine and toxicology -Dr.K.S. Narayan Reddy
24. Medical Laws and Ethics - Dr. H.S. Mehta
25. M.R.K. Krishnan's Handbook of Forensic Medicine
26. Text book of Medical Jurisprudence and Toxicology - Dr. C.K. Parikh

27. Atlas of Forensic Medicine - Dr. Tomio Watenbe
 28. Medico legal Post Mortems (Atlas) - Dr. Parikh and Others
 29. Textbook of Forensic Medicine and Toxicology - Dr.V.V. Pillay
 30. Textbook of Forensic Medicine and Toxicology - Dr. Karmakar
 31. Textbook of Forensic Medicine and Toxicology - Dr. Singhal
 32. Textbook of Forensic Medicine and Toxicology - Dr. Krishnan Vij
 33. Forensic Pathology - Dr. Bernard Knight
 34. Textbook of Forensic Medicine and Toxicology - Lyon's
 35. Pocket picture guide to Forensic Medicine - Gower's Medical Publication
 34. Forensic Medicine - Simpson Knight
 35. Taylor's Principles and Practical of Medical Jurisprudence - J and A Churchis
 36. Doctor and Law - Singhal
 37. Textbook of Toxicology - Singhal

 38. Medicine Harrison's Principal of Internal Medicine
 39. Agad Tantra - Dr.Shekhar Namboodri
 1. Modern Medical Toxicology - Dr. V.V.Pillay
 2. Critical care toxicology - Bruent Wallace
 3. Diagnosis and Management of common poisoning- Agarwal wali
 4. Colour Atlas of Forensic Medicine - Govindaiah
 5. Guidelines of poisons - W.H.O.
 6. Doctors patients relationships - Dr.Lavekar
 7. Bhavaprakasha.
 8. Vishavaidya Jyotsnika -- English translation By VPSV Ayurveda college, Kottakkal.
 9. Lakshnamritham.
 10. Toxicology, Ayurvedic perspective - VPSV Ayurveda college, Kottakal
 11. Text book of Agadatantra - Edited By Dr Huparikar, Dr. Joglekar
 12. Agadatantra ki Pathyapustaka- Edited By Dr Huparikar, Dr. Joglekar
 13. Vyavahar Ayurveda Vigyanam - Dr.Indramohan Jha (Sachchan)

 1. Forensic Medicine - Dr. B. Umadathan
 2. Visha Chikitsa- Dr. M. Balakrishnan Nair
 3. Park Text book of Preventive and Social Medicine. - K. Park
 4. Environmental Science and Biotechnology - Theory and Practice
- A.G. Murukesan &C. Rajakumari
 5. Veterinary Toxicology - Dr. Satish K. Gargi
 6. Guide to Drinking Water Quality (3 Volumes) - WHO Publication
 7. A short Text Book of Medical Entomology - H.S. Bhatti, R. Sehgal,
R.C. Mahajan.
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M.D. AYURVED- FINAL

AGADA TANTRA EVUM VIDHIVAIKYA

PAPER-I Agada Tantra (Ayurvedic and Contemporary Toxicology) 100 marks

1. Agada Tantra, its sequential development during Veda kala, Samhitha kala, Samgraha kala and Adhunika kala.
2. Definition of Visha, properties of visha and its comparison with madya and oja, visha samprapti, visha prabhava, visha-vega, vegantara and visha karmukata (toxicodynamic and toxicokinetic study).
3. Descriptive and comparative study of Upavisha in unison with Contemporary Toxicology.
4. Examination of poisons as per Contemporary and Ayurvedic Methods.
5. Descriptive study of sthavara visha, definition, classifications, classical signs and symptoms of poisoning including vanaspatic (phyto poison), khanija (mineral) and compound sthavara visha.
6. Study of Jangama visha and their sources (Animal poisoning and Zoonotic Diseases). Descriptive study of snakes according to ancient and contemporary knowledge. Causes of snake bite and its types. Composition of snake venom and its pharmacological actions. Signs and symptoms of envenomation and its prognostic signs. Clinical features of Vrischika (scorpion), Luta (spider), Grihagodhika (Lizard), Mushaka (rats), Alarka (dogs), Makshika and Mashaka (mosquitoes) and their pathologic manifestations including their role in the manifestation of communicable diseases.
Shanka visha and its management. Visha sankat and Visha Kanya.
7. Garavisha and Dushi visha, their varieties, signs, symptoms and management with contemporary relevance. Detailed study of Allergies including allergic manifestations in the eyes, nose, lungs and skin.
8. Detailed study of Madya visha and substances acting on the nervous system; substance abuse.(Diagnosis, Management and De-addiction)
9. Detailed study of the contemporary knowledge about vishajanya Janpadodhvansaniya roga (community health problems due to poisons - Environmental pollution, water pollution, soil pollution, air pollution, Industrial pollutions etc. their features and management according to ancient and recent concepts.
10. Concept of Virudha aahara, Aahara visha and Satmyasatmyata in contemporary and Ayurvedic views.
- 10. Conceptual study:- Drug interactions and incompatibility, Pharmacovigilance**

PAPER- II Visha Chikitsa Vigyan (Management Of Poisoning) 100 marks

1. Fundamental Principles for treatment of poisoning
2. General and specific treatment of different types of Sthavara visha.

3. General and specific treatment of different types of Jangama visha (animal poisons, insect poisons, snake bites and other zoonotic diseases).
 4. Emergency medical management of poisoning including preparation, administration and complications of antivenoms/antisera.
 5. Chaturvimsati upakrama (24 management procedures).
 6. Management of Garavisha and Dushivisha. Treatment of Allergies including allergic manifestations in the eyes, nose, lungs and skin.
 7. Diagnosis and Management of Drug Induced Toxicity
 8. Management of the toxic manifestations caused by the contact poisons (paduka, vasthra, abharana, mukhalepa- vishabadha etc).
 9. Management of food poisoning.
 10. Death due to poisoning, Duty of physician in poisoning, in cases of suspected poisoning. Post mortem findings in poisoning.
 11. Extra -corporeal techniques (dialysis etc) for removal of poisons.
- PG Final Year Syllabus-23

PAPER –III Vyavahara Ayurveda Evam Vidhi Vaidyaka 100 marks

1. Definition of Vyavahara Ayurveda, its evolution in ancient and contemporary periods.
2. Personal identity and its medico-legal aspects
3. Death and its medico-legal aspects (Medical Thanatology)
4. Asphyxial deaths and its medico-legal importance.
5. Death due to starvation, heat and cold, lightning and electricity. Suspended Animation.
6. Medico-legal autopsy.
7. Injuries due to explosions, chemical and nuclear warfare.
8. Medico-legal aspects of injuries and wounds.
9. Impotence and sterility-Its medico-legal aspects. Regulations of Artificial Insemination. Medico –legal aspects of surrogate motherhood.
10. Sexual offences and perversions.
11. Medico-legal aspects of virginity, pregnancy, delivery, abortion, infanticide and legitimacy with related acts.
12. Indian Penal Code, Criminal procedure code and study of related acts like Indian Evidence Act, Pre Natal Diagnostic Test Act, Nursing Home Act, Human Organ Transplantation Act, Drugs and Cosmetic Act 1940, Narcotic drugs and Psychotropic substances Act 1985, Pharmacy Act 1948, Drugs and Magical Remedies (Objectionable Advertisements) Act 1954, Medicinal and Toilet Preparations Act 1955 and Anatomy Act etc. Any related act enacted by the government from time to time.
13. Courts and Legal procedures.
14. Forensic Science Laboratory
15. Medico legal aspects of mental illness
16. Duties and privileges of physician.
17. Structure of Central Council of Indian Medicine, its jurisdiction and functions. Code

and Conducts as per the CCIM, Rules and Regulations there under.

18. Respective State Council of Indian Medicine, its structure, power, voluntary duties.
19. Doctor - patient relationship.
20. Rights and privileges of patients; Euthanasia.
21. Professional secrecy and privileged communication.
22. Professional negligence and malpractice
23. Indemnity Insurance scheme.
24. Consumer Protection Act related to medical practice.
25. Ethics as in classics. Types of physicians and methods of identification, Pranabhisara and Rogabhisara Physicians, qualities of physician, responsibilities of Physicians, Chaturvidha vaidya vriti, duties of physicians towards patients, Vaidya sadvritam, Apujya Vaidya who is accepting fees, relationship with females.

PAPER – IV Aushadha Yoga Vigyan 100 marks

1. Study of process for sodhana, marana and samskarana of poisonous drugs.
 2. Pharmaco-dynamics of different formulations used in Agadatantra
 3. Study of pharmacology and usage of antidotes as per the Ayurvedic and contemporary science.
 4. Fundamentals of pharmaceutics according to Ayurvedic and contemporary point of view.
 5. Chemical, analytical, laboratory examination of poisons and suspicious substance.
 6. Introduction of different instruments /equipments used in the examination of poisons.
 7. Introduction to Clinical toxicology
 8. Introduction to Experimental toxicology
- PG Final Year Syllabus-24
9. Introduction to Toxicology - genomics
 10. Survey and study of the traditional and folklore vishachikista sampradaya.

Content of Practical/Demonstration

1. Identification of specimens models and equipments of toxicological and jurisprudence importance.
2. Practical training in postmortem examination (10 cases)
3. Regular clinical postings in the Agadatantra OPD / IPD
4. Medico-legal cases (20 cases)
5. Chemical Identification of various acids, alkalies, alcohols – Hydrochloric acid, Nitric acid, Sulphuric acid, Ascorbic acid, Sodium Hydroxide and Potassium Hydroxide
6. Detection of minerals Copper, Mercury, Lead, Arsenic and their compounds.
7. Physical and Chemical analysis of Dattura, Karaveera, Vatsanabha, Jayapala, Arka and Bhallataka with Microscopy, powder microscopy, TLC, solvent extraction, detection of Phenol, tannins etc. (10 studies)
8. Detection of human blood, hair, semen and other biological secretions of Forensic importance.
9. Herbarium of 15 sthavara vishas and 10 agadas.

10. Preparation of two Agada yogas

Clinical Postings

1. Modern medical hospitals – 2 weeks
(For emergency management of poisoning)
2. Postmortem postings - 2 weeks
3. Court postings - 1 week

Visit to

1. Forensic Laboratory
2. Anti snake venom serum manufacturing Unit.

Pattern of practical examination

1. Post mortem / Medico-legal case record and clinical record - 10 Marks
2. Identification of specimens models and equipments of jurisprudence importance. - 20 Marks
3. Spotting related to Visha, Upavisha and others poisonous drugs - 20 Marks
4. Thesis presentation - 25 Marks
5. Viva-voce - 25 Marks

Total 100 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. Aushadigunadharm Shastra -PtGangadharaShastri Gune
 10. Rasendracintamani
 11. Rasaratna samuchhaya
 12. Vishavigyan - Dr. Krishna Kumar
 13. Related matter of Kautilya Artha Shastra
 14. Harmekhlatantra
 15. Anupana manjari
- PG Final Year Syllabus-25
16. Ayurvedprakash
 17. System of clinical Medicine - Savil
 18. Forensic Pharmacy - B.M. Mhithai
 19. Hand book of Forensic Medicine and toxicology - Dr. P.V. Chadha
 20. Viva Forensic Medicine and toxicology - L.C. Gupta
 21. Forensic Medicine and Ethics - J.P. Narena
 22. Modi's Medical Jurispudence and Toxicology
 23. The essentials of forensic medicine and toxicology - Dr.K.S. Narayan Reddy
 24. Medical Laws and Ethics - Dr. H.S. Mehta
 25. M.R.K. Krishnan's Handbook of Forensic Medicine

26. Text book of Medical Jurisprudence and Toxicology - Dr. C.K. Parikh
 27. Atlas of Forensic Medicine - Dr. Tomio Watenbe
 28. Medico legal Post Mortems (Atlas) - Dr. Parikh and Others
 29. Textbook of Forensic Medicine and Toxicology - Dr.V.V. Pillay
 30. Textbook of Forensic Medicine and Toxicology - Dr. Karmakar
 31. Textbook of Forensic Medicine and Toxicology - Dr. Singhal
 32. Textbook of Forensic Medicine and Toxicology - Dr. Krishnan Vij
 33. Forensic Pathology - Dr. Bernard Knight
 34. Textbook of Forensic Medicine and Toxicology - Lyon's
 35. Pocket picture guide to Forensic Medicine - Gower's Medical Publication
 36. Forensic Medicine - Simpson Knight
 37. Taylor's Principles and Practical of Medical Jurisprudence - J and A Churchis
 38. Doctor and law - Singhal
 39. Textbook of Toxicology -Singhal
 40. Medicine Harrison's Principal of Internal Medicine
 41. Agad Tantra - Dr. Shekhar Namboodri
 42. Modern Medical Toxicology - Dr. V.V.Pillay
 43. Critical care toxicology - Bruent Wallace
 44. Diagnosis and Management of common poisoning - Agarwal wali
 45. Colour Atlas of Forensic Medicine - Govindaiah
 46. Guidelines of poisons - W.H.O.
 47. Doctors patients relationships - Dr.Lavekar
 48. Bhavaprakasha.
 49. Vishavaidya Jyotsnika -- English translation By VPSV Ayurveda college, Kottakkal.
 50. Lakshnamritham.
 51. Toxicology, Ayurvedic perspective - VPSV Ayurveda college, Kottakkal
 52. Text book of Agadatantra - Edited By Dr Huparikar, Dr. Joglekar
 53. Agadatantra ki Pathyapustaka - Edited By Dr Huparikar, Dr. Joglekar
 54. Vyavahar Ayurveda Vigyanam - Dr.Indramohan Jha (Sachchan)
 55. Forensic Medicine - Dr. B. Umadathan
 56. Visha Chikitsa - Dr. M. Balakrishnan Nair
 57. Park Text book of Preventive and Social Medicine. - K. Park
 58. Environmental Science and Biotechnology - Theory and Practice - A.G. Murukesan & C. Rajakumari
 59. Veterinary Toxicology - Dr. Satish K. Gargi
 60. Guide to Drinking Water Quality (3 Volumes) - WHO Publication
 61. A short Text Book of Medical Entomology - H.S. Bhatti, R. Sehgal, R.C. Mahajan.
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