

Study & Evaluation Scheme

of

Doctor of Medicine MD (Forensic Medicine & Toxicology) 2011-12



TEERTHANKER MAHAVEER MEDICAL COLLEGE & RESEARCH CENTRE
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P.G. Curriculum

MD Forensic Medicine & Toxicology

1. Goals and Objectives
2. Syllabus
3. Teaching program
4. Posting
5. Thesis
6. Assessment
7. Job responsibilities
8. Suggested books
9. Model Test papers

1. Goals

To prepare a PG at national & international level standard.

Objectives

- ❖ He should have basic knowledge of undergraduate & post graduate level both.
- ❖ He should have basic clinical knowledge of subject.
- ❖ He can deal with all types of medico legal works to help justice.
- ❖ He should have personality to work for academic & research purpose.

2. Syllabus

Theory

- Basic medical sciences namely Anatomy, Physiology, Pharmacology, Pathology and Microbiology as applied to Forensic Medicine
- Surface land marks & regional anatomy of medico-legal significance.
- Comparative anatomical study of Male & Female skeleton.
- Anatomy of neck with special references to violent asphyxial deaths.
- Anatomy of reproductive organs
- Gross anatomy of heart and coronaries.
- Outline of embryonic / fetal development.
- Microscopic anatomy (histology of different organs & tissues, such as brain,
- heart, lungs, liver, kidneys, spleen, thyroid, adrenals, bone, and skin)
- Body water & fluid balance.
- Blood grouping & Rh incompatibility.
- Physiology of menstruation & pregnancy.
- Physiology of thermo-regulation.
- Patho-physiology of shock.
- Blood sugar regulation & diabetic coma, hypoglycemic coma.
Outline of the functions of circulation, respiration, hemopoietic, nervous, digestive, endocrine, excretory, reproductive and musculo-skeletal system.
Patho-physiology of sexual functions and histopathology.
- General pathology: Pathology of cell / tissues – Degenerative changes & secondary changes, atrophy, hypotrophy, aplasia, hyperplasia, ischemia, necrosis, infarction, cloudy swelling, amyloidosis and embolism, asphyxial deaths, electricity, gun-shot wounds, poisoning, thrombo-embolism, fat embolism, aspirations, wound healing, histological determination of time of death.
- Body's local and systemic response to trauma.
- Healing and fibrosis (Pathology of scar)
- Common general and systemic diseases caused by physical/chemical agents.
- Disorders of infancy and old age changes relevant to forensic medicine.
- Pathology-gross and microscopic, in myocardial infarction, congenital heart diseases, tuberculosis, cirrhosis, malnutrition, starvation.
- Histology with important Staining Procedures
- Microbiology and serology of venereal diseases infections.
- Microbiology of Cadavers.
- Relevant General Pharmacology, Pharmacology of Important Antidotes & Drugs of Addiction, Anti-sera, Hormones & Anesthetic Drugs.
- Forensic Medicine including other clinical subjects as applied to it.
- Identification of the living and dead, determination of race and religion, sex, age, external peculiarities, such as moles, birth marks, occupational marks, anthropometry, fingerprints, and foot prints handwriting etc. and their medico legal aspects. Evaluation of evidence from the skeleton. Problems of reconstruction, and superimposition technique.
- Medico-legal aspects of allergy and anaphylaxis.
- Evidence from trace elements, like hair and biological stains of blood, semen, sweat, saliva, milk, sputum etc.
- Laboratory investigations as required in medico-legal situations, like unconsciousness, sudden death from unknown causes, therapeutic misadventures, industrial exposures and the like.
- ❖ Outlines of analytical and histo-pathological techniques as applied to forensic
- ❖ medicine.

- ❖ Injuries and Thermal deaths from cold, heat, electricity, lightning and radiation.
- ❖ Death from starvation.
- ❖ Mechanical injuries & their medico-legal aspects in relation to nature of injuries, accidental, suicidal, homicidal, and distinction between injuries caused during life and after death. Medico-legal examination of an injured person. Regional and Transportation injuries.
- ❖ Examination of weapon in relation to inflicted injuries.
- ❖ Firearm injuries.
- ❖ Causes of death from wounds.
- ❖ Forensic radiology in identification, pathology, dentistry, child abuse, trauma, medico-legal implications of radiological procedures.
- ❖ Forensic psychiatry: Various Acts in relation to Forensic psychiatry, Classification of mental disorders and abnormal human behaviors. Medico-legal aspects of insanity and abnormal human behavior as regards to civil & criminal responsibilities and rules regarding admission, treatment and discharge of mentally ill person in the Mental Hospitals. Feigned insanity, Juvenile delinquency in the juvenile court. Restraint of mentally ill person.
- ❖ Biology of behavior, emotion, stress, attitudes, normal & abnormal personalities.
- ❖ Psychological assessment & testing personality and its disorders, abnormal psychology, health psychology, assessment strategies in medical education.
- ❖ Study of suicide, production of personality and circumstances. Postmortem analysis of suicide notes and its circumstances.
- ❖ Counseling in normal sexual behavior and sex related disorders.
- ❖ Medico-legal aspects of emergency, resuscitation in intensive care
- ❖ Trauma, Work Stress & Disease.
Torture medicine: Medico-legal aspects & duties of physician in cases of torture.
- ❖ Mass disasters.
- ❖ Bombs and other explosives. Biological and chemical warfare and barotrauma.
- ❖ Impotence, Sterility, Artificial insemination, sterilization. Test tube babies & their medico-legal aspects.
- ❖ HIV and AIDS.
- ❖ Virginity, Pregnancy, Delivery in relation to suit of nullity of marriage, divorce, and legitimacy affiliation cases etc.
- ❖ Abortion – Criminal & Justifiable, Laws in relation to criminal abortion. Duties of medical persons when called to treat a case of criminal abortion. MTP Act 1971.
- ❖ Sexual Offences – Rape, Incest, unnatural sexual offences, such as sodomy, Tribadism, Bestiality & Buccal Coitus, Sexual perversions.
- ❖ Infanticide.
- ❖ Forensic Toxicology & Medical Jurisprudence
- ❖ General & Forensic Toxicology including Classification, Mechanism of Action, Clinical Features, Diagnosis, Management, Autopsy appearances & Medico-legal Importance of Poisons.
- ❖ Addiction, de-addictions and drug abuse.
- ❖ Important Toxicological Analytical Techniques.
- ❖ Forensic Science: Recent Advances & Modern Trends.
- ❖ Introduction & working of various Wings of Forensic Science Laboratory - Immunology, Examination of biological trace material evidence, ballistics, Crime Laboratory, Forensic Photography.
- ❖ Definition of Medical Jurisprudence.
- ❖ Introductory remarks, Criminal Courts & their powers, inquests and legal procedures, procedure in court, medical evidence, various medical certificates, medico legal reports, dying declaration & dying deposition, witness, conducts and duties of the doctor in the witness box, professional secrecy.
- ❖ Regulation of medical profession, various governing bodies, their constitution &

functions. Laws in relation to medical man.

- ❖ Rights, duties & privileges of a registered medical practitioner.
- ❖ Informed consent in medical practice. Infamous conduct. Medical malpraxis.
- ❖ Physician duties under various public health & medical Acts.
- ❖ Problems of privileges and confidentiality etc. Physician in the Witness Box.
- ❖ Liabilities of Hospitals, nursing home and public dispensaries to patients.
- ❖ Medical practice in relation to Insurance.
- ❖ Relevant parts of Indian Penal Code, Criminal procedure, Indian Evidence Act, Immoral Trafficking Act, Workman's Compensation Act and other Laws related to medical practice.
- ❖ Law & Procedures related to Organ Transplantation.
- ❖ Legal & Ethical aspects of Family planning procedures.
- ❖ Therapeutic trial & human experimentation etc.
- ❖ Medico-legal aspects of Organ & Tissue transplantation.
- ❖ Euthanasia.
- ❖ Supreme Court and High Court Landmark judgments related to Forensic Medicine and Medical Jurisprudence
- ❖ Relevant Laws, Legal Procedures, Psychiatry & Medical Jurisprudence including MCI, Ethics & Bio-Medical Research, Consent, Negligence, Evidence & Recording of Evidence ,
- ❖ Relevant Sections of IPC, Cr Pc, IEA, Acts - CPA, MTP, PNDD, NDPS, OT , NHRC
- ❖ Medical certification of cause of death and relevant vital statistics.
- ❖ Day-to-day MLC problems in hospitals.
- ❖ Recent laws applicable to medical man.
- ❖ Value of medical opinion in the court of law.
- ❖ Forensic Pathology including Forensic immunology & recent advances
- ❖ Medico legal autopsy of dead body, decomposed and mutilated body or its fragments / skeleton, bones, exhumation & rules regarding it.
- ❖ Death, manner of death, modes of death, cause of death, sudden death, signs of death and changes following death. Estimation of postmortem interval, Forensic Entomology, Postmortem chemistry of body fluid like blood, CSF and vitreous humor, presumption of death and presumption of survivorship.
- ❖ Violent asphyxial deaths: Hanging, Strangulation, Suffocation and Drowning.
- ❖ Death from sudden violence, suspicious, unknown and unnatural cause, disease following trauma.
- ❖ Basic concepts of immunology and serology.
- ❖ Principles of various immuno-serological tests, precipitin test, pregnancy test, sperm antibody test.
- ❖ Role of immunological techniques in crime investigation and exclusion of parentage.
- ❖ Incompatibility and adverse reaction of drugs commonly used in therapy etc.
- ❖ Anaphylaxis and hypersensitivity reactions.
- ❖ Different types of teaching aids, methods of teaching & question paper formation of different types (MCQs, Structured, Short, and Essay types).
- ❖ DNA & Fingerprint system, Lie Detector & Polygraph, Narco-analysis.
- ❖ National Health policies.
- ❖ Life saving maneuvers and pre-hospital first aid.
- ❖ Routine and advanced Imaging Techniques and equipments.
- ❖ Medico-legal record keeping.
- ❖ Basics of medical education technology and research methodology.
- ❖ Computer and its use and its applicability in the specialty.
- ❖ Medical auditing.

Note: The project syllabus is minimal and may require further improvement from

time to time as per requirements of MCI and the advances in the specialty of forensic medicine & toxicology.

❖ **Practical**

- ❖ Medico-legal autopsies.
- ❖ Age estimation.
- ❖ Medico-legal Injury report preparation.
- ❖ Medico-legal examination of an Alcoholic and other drugs.
- ❖ Medico-legal examination in cases of Sexual offences.
- ❖ Medico-legal examination of Poisoning cases.
- ❖ Psychiatric assessment of a patient.
- ❖ Medico-legal examination of bones, weapons, clothing, wet specimens, and poisons.
- ❖ Detection of common poisons in Toxicology Laboratory.
- ❖ Medico-legal examination of Photographs.
- ❖ Medico-legal examination of X-rays.
- ❖ Laboratory examination of Biological trace material evidence.
- ❖ Court evidence / attendance.
- ❖ Awareness of various intensive care setups & operation theatre setups.
- ❖ Awareness of medico-legal & crime laboratory instruments & equipments.
- ❖ Attending CME/Workshops/Conference; involvement in UG Teaching.

3. Teaching Program

General Principles

Acquisition of practical competencies being the keystone of postgraduate medical education, postgraduate training is skills oriented.

Learning in postgraduate program is essentially self-directed and primarily emanating from clinical and academic work. The formal sessions are merely meant to supplement this core effort.

Teaching Sessions

In addition to undergraduate teaching by postgraduate students, there are daily sessions of formal teaching. Each MD student has to present Seminars, Journal clubs, perform medico-legal autopsies, and prepare medico-legal reports. They are also allotted time for doing work related to thesis.

The postgraduate student shall be required to actively participate in the Teaching / Training programmes of undergraduates, nursing students, and interns. The candidates are also expected to be aware of basics of medical education teaching technology principles and use of audio-visual aids in the same.

Candidates must actively participate in Postmortem Examination, Clinical Medicolegal

cases, Laboratory work, Clinico-pathological Conferences, Seminars, Journal Clubs, Group Discussions, Visit to Scene of crime, Court Evidence & Research work.

The facilities offered by other Clinical & Basic Science Departments are made available to them.

The postgraduate student should maintain a Log Book of the work assigned to him. This log book will be assessed by the postgraduate Guide of the student and will be jointly evaluated by the Guide & Head of the Department.

Teaching Schedule

The suggested departmental teaching schedule is as follows:

- | | |
|---------------------------------------------------------|--------------|
| 1. Thesis work reporting to guide and to the Department | Once a week |
| 2. Journal club | Once a week |
| 3. Autopsy report presentation | Once a week |
| Presentation of clinical forensic medicine cases | Once a week |
| 4. Seminar | Once a week |
| 5. Statistics | Once a week |
| 6. Theory test | Once a month |
| 7. Grand viva | Once a month |

Note:

- All sessions are to be attended by the faculty members. All PGs are supposed to attend the sessions.
- All the teaching sessions are assessed by the consultants at the end of session and marks are given out of 10 (for participants) & 100 (for presenter) and kept in the office for internal assessment.
- Attendance of the residents at various sessions has to be at least 75%.

4. Posting:

The postgraduate student shall rotate through the following department and acquire the relevant knowledge as follows:

- ❖ Anatomy
Dissection techniques, Gross & Histological appearances of Vital Organs & Endocrines. Forensic Osteology, Anthropometry, Embalming & Relevant Embryology.
- ❖ Physiology & Biochemistry
Functional aspects of Vital Organs & endocrines, Physiology & Biochemistry of Blood, Semen, Saliva, Sweat, CSF, Postmortem
- ❖ Biochemistry of Body Fluids.
- ❖ Pathology & Microbiology
Injury, Inflammation, Repair, Thrombo-Embolism, Shock, Gross & Microscopic Appearances of Vital Organs and histopathology in cases of sudden death e.g. Myocardial infarctions and other related diseases which can cause sudden death by complications e.g. tuberculosis, renal failure etc.& Endocrines Important Staining techniques, Museum Procedures, Infection, Immunology, HIV, Anaphylaxis, Insulin, Penicillin. Observation, Collection, Preservation & Forwarding of Pathological & Microbial Evidence.
- ❖ Medicine + Pediatrics + Psychiatry + Pharmacology + Medical Record Section
Awareness of Diagnosis, Evaluation of ECG in cases of Myocardial Infarctions Medicolegal Aspects & Management of Critical Care, Poisoning & Psychiatry cases, Visit to MICU Set Up, Important Paediatric procedures + NICU Set Up, Pharmacology & Detection of Drugs of Dependence.
- ❖ Casualty
First Aid , Examination, Diagnosis & Medical + Medico-legal Management of Clinical Medico-legal cases, Dying Declaration and Dying deposition, Gastric lavage, Parental Injections, Emergency Tray, Casualty Administration in Mass Disasters.
- ❖ Surgery + Orthopedics +Dentistry + Radiology + Anesthesiology
Awareness regarding Examination, Diagnosis & Medical + Medico-legal Management of cases Of Important Regional Injuries (Polytrauma & Burns), Injury certification & Disability Evaluation, X-ray findings in Bone Trauma, and Age determination cases. Intracranial hemorrhages with the help of MRI and CT Scans, Visit to Surgical ICU & Operation Theatre, Awareness of important Anesthetic Procedures and complications, Important OT Instruments & Equipments.
- ❖ Obstetrics & Gynecology
Abortion, Sterilization Techniques, Introduction to Major Obs. & Gyn. Procedures, Prenatal Diagnostic Techniques. Study of fetuses and placenta.
- ❖ Forensic Science Laboratory:
Introduction to various sections of the FSL Setup & Instrumentation, Introduction to & relevant awareness of important Qualitative & Quantitative Detection & Analytical Techniques. Introduction to & relevant awareness of Identification, Biology, Chemistry, Toxicology & Ballistics Divisions.
Note:-The Casualty Posting should be split in to two periods. The initial posting during First Year is introductory type. The Second Casualty posting is during Second year. This posting is major one & it is expected that students must be exposed to maximum quantity & variety of cases. Their ability to manage the casualty in major casualties can be observed during this period.

5. Thesis

- Every candidate shall carry out work on an assigned research project under the guidance of a recognized Postgraduate Teacher; the project shall be written and submitted in the form of a Thesis.
- Every candidate shall submit thesis plan to the University as per University norms and time specified by it.
- Thesis shall be submitted to the University six months before the commencement of theory examination i.e. for examination May/June session, 30th November of the preceding year of examination and for November/December session, 31st May of the year of examination.
- The students will identify a relevant research question; (ii) conduct a critical review of literature; (iii) formulate a hypothesis; (iv) determine the most suitable study design; (v) state the objectives of the study; (vi) prepare a study protocol; (vii) undertake a study according to the protocol; (viii) analyze and interpret research data, and draw conclusions; (ix) write a research paper.

6. Assessment

All the PG residents are assessed daily for their academic activities and also periodically.

General Principles

- ❖ The assessment is valid, objective, and reliable
- ❖ It covers cognitive, psychomotor and affective domains
- ❖ Formative, continuing and summative (final) assessment is also conducted in theory as well as practical/clinical. In addition, thesis is also assessed separately.

Formative Assessment

The formative assessment is continuous as well as end-of-term. The former is based on the feedback from the senior residents and the consultants concerned. End-of-term assessment is held at the end of each semester (up to the 5th semester).

Formative assessment will not count towards pass/fail at the end of the program, but will provide feedback to the candidate.

Summative Assessment

- ❖ Ratio of marks in theory and practical will be equal
- ❖ The pass percentage will be 50%
- ❖ Candidate will have to pass theory and practical examination separately.

Theory Examination (Total=400)

Title Marks

Paper 1: Basic medical sciences	100
Paper 2: Forensic Medicine including other clinical subjects as applied to it	100
Paper 3: Forensic Toxicology & Medical Jurisprudence	100
Paper 4: Forensic Pathology including Forensic immunology & Recent Advances	100
Total	400

B. Practical & Viva-voce Examination (Total=400)

1. Autopsy case (long case)	100
❖ Procedure	25
❖ Observations	25
❖ Interpretation	25
❖ Making of report	25
2. Medico-legal report writing (short cases)	100
❖ Injury case	25
❖ Sexual offence case	25
❖ Age determination case	25
❖ Poisoning case	25
3. Spots	50
❖ Poisons	10
❖ Weapons	10
❖ Bones	10
❖ Slides	10
❖ X-ray films	10
4. Tests on body fluids and stains	50
5. Grand Viva	100
Total	400

7. Job Responsibilities

The junior residents should:

- ❖ Maintain log book on daily basis.
- ❖ Maintain daily record of post graduate activities including:
 - Practical exercises
 - Statistics exercises
 - PG teaching schedule
- ❖ Prepare for undergraduate and postgraduate practical.
- ❖ Provide the basic medico-legal services in relation to practice of medicine.

8. Suggested books:

Core Books

- ❖ Modi's Text book of Medical Jurisprudence & Toxicology.
- ❖ The Essentials of Forensic Medicine & Toxicology: K.S.N. Reddy.
- ❖ Textbook of Forensic Medicine: J.B. Mukharjee, Vol. 1 & 2.
- ❖ Principles of Forensic Medicine: A. Nandy.
- ❖ Textbook of Forensic Medicine & Toxicology, Principles & Practice: Krishan Vij
- ❖ Textbook of Forensic Medicine & Toxicology V.V. Pillay.
- ❖ Modern Medical Toxicology. V.V. Pillay
- ❖ Forensic Pathology: Bernard Knight
- ❖ Handbook of Forensic Pathology: Vincent Di Maio & Suzzanna E. Dana.

Reference Books

- ❖ Bernard Knight: Cox's Medical Jurisprudence & Toxicology.
- ❖ Russel S. Fisher & Charles S. Petty: Forensic Pathology.
- ❖ Keith Simpson's Forensic Medicine.
- ❖ Jurgen Ludwig: Current methods of autopsy practice.
- ❖ Camps F.E. Gradwohls Legal Medicine, Bristol Wright.
- ❖ Simpson's: A Doctors guide to Court.
- ❖ Polson C.J.: The Essentials of Forensic Medicine.
- ❖ Adelson L.: The Pathology of Homicide.
- ❖ Tomio Watanabe: Atlas of Legal Medicine.
- ❖ Spitz W.U. & Fisher R.S.: Medico-legal Investigation of Death.
- ❖ A. Keith Mant, Taylor's Principles & Practice of Medical Jurisprudence.
- ❖ Justice Hidayatullah & V.R. Manohar: The Indian Penal Code.
- ❖ Justice Hidayatullah & S.P.Sathe: The Code of Criminal Procedure.
- ❖ Justice Hidayatullah & V.R. Manohar: The Law of Evidence.
- ❖ H.S. Mehta: Medical Law & Ethics in India.
- ❖ Code of Medical Ethics, Medical Council of India
- ❖ Krogman W.M.: The Human Skeleton in Legal Medicine.
- ❖ F.E. Camps, J.M. Cameron, David Lanham: Practical Forensic Medicine.
- ❖ B.V. Subrahmanyam: Textbook of Forensic Medicine & Toxicology.
- ❖ R.D. Lele: The Medical Profession & Law.

Journals

- ❖ Journal of Forensic Sciences.
- ❖ Journal of Legal Medicine (American College of Medicine.).
- ❖ Journal of Forensic Science Society.
- ❖ Medico-legal Journal.
- ❖ American Journal of Law & Medicine.
- ❖ American Journal of Forensic Medicine.
- ❖ Forensic Science International.
- ❖ Journal of Clinical Forensic Medicine.
- ❖ Medicine Science & Law.
- ❖ Science & Justice.
- ❖ Journal of Indian Academy of Forensic Medicine.
- ❖ Journal of Punjab Academy of Forensic Medicine and Toxicology
- ❖ Journal of Forensic Medicine & Toxicology
- ❖ Medico-legal Update.
- ❖ Journal of Forensic and Legal Medicine.
- ❖ Journal of Forensic Medicine and clinical pathology.
- ❖ American journal of Forensic Medicine and pathology.

9. Model Test Papers

MODEL QUESTION PAPER
MD (Forensic Medicine)
Paper-I
Basic Medical Sciences

Max. Marks:100

Time: 3 hrs

- **Attempt ALL questions**
 - **Answer each question & its parts in SEQUENTIAL ORDER**
 - **ALL questions carry equal marks**
 - **Illustrate your answer with SUITABLE DIAGRAMS**
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- I Describe blood supply of the heart. What are the histopathological changes in MI?
- II Describe anatomy of skull from medico-legal point of view.
- III Describe the physiology of muscle contraction & rigor mortis.
- IV How can you identify the sex of a person microscopically?
- V Enumerate the medico-legal importance of examination of blood.
- VI Describe the age changes in pubic symphysis and its medico-legal significance.
- VII Discuss the patho-physiology of hypovolemic shock.
- VIII Describe the Circle of Willis and its medico-legal importance.
- IX Describe the process of healing of wound and determination of age of the wound.
- X Describe the dissection of neck and its blood vessels in context to asphyxial Deaths

MODEL QUESTION PAPER
MD (Forensic Medicine)
Paper-II

Forensic Medicine including other clinical subjects as applied to it

Max. Marks:100

Time: 3 hrs

- **Attempt ALL questions**
 - **Answer each question & its parts in SEQUENTIAL ORDER**
 - **ALL questions carry equal marks**
 - **Illustrate your answer with SUITABLE DIAGRAMS**
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- I Describe the examination procedure and findings in a 16 year old victim of rape.
- II Explain therapeutic misadventure with examples.
- III Discuss the role of radiological examination in clinical forensic medicine.
- IV Discuss the medico-legal aspects of artificial insemination.
- V Describe elementary ballistic principles and their medico-legal significance.
- VI What are the medico-legal aspects of insanity?
- VII Discuss medico-legal aspects of treatment including iatrogenic disease and industrial hazards.
- VIII Enumerate the medico-legal importance of Ultrasound and CT scan.
- IX Discuss the medico-legal aspect of AIDS.
- X What is the role of clinical forensic medicine in prevention of torture?

MODEL QUESTION PAPER
MD (Forensic Medicine)
Paper-III
Forensic Toxicology & Medical Jurisprudence

Max. Marks:100

Time: 3 hrs

Attempt ALL questions

Answer each question & its parts in SEQUENTIAL ORDER

ALL questions carry equal marks

Illustrate your answer with SUITABLE DIAGRAMS

- I Describe in detail the set up of Modern poison control centre.
- II Classify insecticides/Organophosphorus compounds.
- III What is Therapeutic misadventure? Explain with examples.
- IV What is professional negligence? Give some examples.
- V What are medico-legal issues pertaining to Plumbism?
- VI Discuss the ethical considerations for Human experimentation.
- VII Enumerate the salient features of NDPS Act.
- VIII Describe the signs and symptoms, fatal dose, treatment, and postmortem changes in case of Alphas poisoning.
- IX Describe the differential diagnosis of dilated and constricted pupils from forensic viewpoint.
- X Describe Professional Misconduct. Give some examples.

MODEL QUESTION PAPER
MD (Forensic medicine)
Paper-IV
Forensic Pathology including Forensic immunology & Recent advances

Max. Marks:100 Time: 3 hrs

- **Attempt ALL questions**
 - **Answer each question & its parts in SEQUENTIAL ORDER**
 - **ALL questions carry equal marks**
 - **Illustrate your answer with SUITABLE DIAGRAMS**
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- I Enumerate the Tissues/materials preserved for DNA analysis.
- II Discuss to substantiate that applied aspects of Forensic Pathology & Odontology have much to help the system of Penology, law & order and to assure justice.
- III Discuss the medico-legal aspects of Human organ transplantation.
- IV Discuss the scope of Entomology in determination of time since death. Quote recent famous cases where this technique proved of significant value.
- V Discuss the ethical issues related to Cloning.
- VI Discuss ML applications of DNA fingerprinting. Also discuss the probative value of this evidence
- VII Discuss the ethical issues pertaining to Renting of Womb.
- VIII What are the liabilities of a doctor in case of mismatched blood transfusion?
- IX Discuss the medico-legal issues related to Euthanasia. What is the legal status of Euthanasia in India?
- X Enumerate the salient features of ART Act.