Paper II: Service Specific

Part I: General Subject

1. Research and paper publication
   1.1. Planning and carrying out health research
   1.2. Methodology, design, variables, sampling, data collection, data entry, descriptive statistics, research reports, random number
   1.3. Interpretation of the results of health research
   1.4. Bio-statistics, probability, hypothesis tests, estimation, parametric and non-parametric statistics, regression and correlation, longitudinal studies
   1.5. Dissemination of the results
   1.6. Principles of paper publications and search and critical review of literature, types of papers, common headings, tables and graphs, reference writing
   1.7. Introduction to ethical theories/principles; ethics, morals and legality; medical ethics; professional ethics; ethics in research; ethics in health policy

2. Medical education and training
   2.1. General principles, curricular components, fundamentals of the educational process
   2.2. Curriculum development and education strategies
   2.3. Identification of learning resources to meet the learning objectives
   2.4. Teaching/learning methods
   2.5. Teaching-learning aids: Use and efficient methods of overhead projectors, slides, models, power-point presentations, in the teaching learning objectives
   2.6. Classroom presentation skills
   2.7. Evaluation and assessment of learning: methods of evaluation, types of questions
   2.8. Continuing professional development (CPD)
   2.9. Basics of educational medicine
   2.10. Evidence-based medical practice
   2.11. Problem-oriented medical record

3. Acts/regulations related to medical practice and investigation
   3.1. Human organ transplant act
   3.2. Consumer protection act
   3.3. Laws related to the rational use of drugs
   3.4. NMC Act and Regulation
   3.5. Muluki Ain: Chapters of Jyan Sambandhi, Ilaj Garneo, Jabarjasti Karani, Hadnata Karani, Pasu Karani, Kutpat, Danda Sajaya, Adalati Bandobasta
   3.6. Evidence Act
   3.7. State Cases Act and State Cases Regulation
   3.8. Torture Compensation Act

4. Practice of Forensic Medicine
   4.1. History and development of forensic medicine
   4.2. Death investigation systems in the developed and developing world
   4.3. Natural and unnatural death; certification of these deaths; death statistics of Nepal
   4.4. Medico-legal and death investigation system in Nepal and its weaknesses
   4.5. Epidemiology and investigation of natural and unnatural deaths in Nepal
   4.6. Mass disasters and principles of their timely and efficient management
   4.7. Scene of death and scene of crime investigation
Part II: Technical Subject

1. Medical jurisprudence
   1.1 Universal principles of medical ethics and the Geneva Declaration, 1948
   1.2 Consent, types of consents, the doctrine of informed expressed consent
   1.3 Euthanasia and its ethics and legality
   1.4 Medical ethics in specific situations such as HIV/AIDS, terminal cancer patients; role of treating doctors in hunger strikes and management of patients in critical conditions
   1.5 Medical negligence and professional misconduct
   1.6 Medical evidences and their application in a court of law
   1.7 Witness and expert witness testimony in a court of law

2. Forensic pathology
   2.1 Thanatology
      2.1.1 Death; cause of death, mechanism of death and manner of death
      2.1.2 WHO classification of diseases and death; hospital and medico-legal certification of death
      2.1.3 Changes after death and their application in the estimation of the time of death
   2.2 Medico-legal autopsy
      2.2.1 Anatomy, developmental anatomy and pathology of the organs of all the systems with especial attention to that of the skull, brain, cervical vertebrae, jaws, neck, tracheo-broncial tree, lungs, heart, aorta, esophagus, stomach, liver, pancreas, spleen, kidneys, the female reproductive organs, the thoracic cage, long bones, and the larger joints (shoulder, elbow, wrist, knee, ankle)
      2.2.2 Types of death that need to undergo a medico-legal autopsy in Nepal; pathological and medico-legal autopsies
      2.2.3 Autopsy procedures: external and internal examination; sample collection for various purposes; special techniques in the dissection of the neck, heart, pelvic organs and other organs; floatation test
      2.2.4 Special consideration in the autopsy of both natural and unnatural deaths: death due to disease; decomposed bodies; mutilated bodies; charred bodies; fragmentary remains; fetuses; possible sudden infant deaths; sudden natural adult deaths; different types of violent asphyxial deaths; fire-arm deaths; bomb blast and other explosion deaths; deaths associated with anaesthesia and surgery; starvation deaths; deaths due to heat and cold; low and high voltage electrocution and lightning deaths; deaths during illegal abortion; custodial deaths; mass disaster deaths
      2.2.5 Post-mortem artifacts; anthropophagy
      2.2.6 Exhumation
   2.3 Injuries
      2.3.1 Classification; blunt force, sharp force and firearm injuries
      2.3.2 Thermal, electrical, lightning and radiation injuries
2.3.3 Chemical and explosive injuries
2.3.4 Self inflicted, fabricated and defense injuries; fresh and healing injuries
2.3.5 Cranio cerebral injuries
2.3.6 Transportation injuries
2.3.7 Medico-legal aspect of injuries and death

3. **Clinical Forensic Medicine**

3.1 **Sexual offences**
   3.1.1 Alleged rape and rape; incest; sexual perversions; other types of sexual assault; examination of the victim/accused of alleged sexual offences

3.2 **Medico-legal aspect of abortion**

3.3 **Medico-legal aspects of virginity, pregnancy and delivery**

3.4 **Medico-legal aspects of impotence, frigidity, sterility and artificial insemination**

3.5 **Medico-legal aspects of IVF and surrogate motherhood**

3.6 **Injury and clinical forensic medicine**
   3.6.1 Simple and grievous hurt or Angabhanga
   3.6.2 Medico-legal examination of physical assault cases
   3.6.3 Medico-legal examination of victim of torture
   3.6.4 Medico-legal aspects of battered baby syndrome and other forms of child abuses
   3.6.5 Medico-legal aspects of domestic and gender-based violence

3.7 **Forensic psychiatry**
   3.7.1 Insanity
   3.7.2 Criminal and civil responsibilities of the insane
   3.7.3 Mental state examination
   3.7.4 True and feigned insanity
   3.7.5 Medico-legal aspects of mental unsoundness

3.8 **Age estimation of the living with especial consideration of new born babies, of teenagers, of dead bodies, and of skeletal remains**

4. **Identification**
   4.1 Presumptive and positive identification
   4.2 Data for identification in living persons and dead bodies
   4.3 Ante-mortem data and its application in personal identification
   4.4 Different methods of positive identification: fingerprint, dental methods and DNA profiling
   4.5 Disaster victim identification (DVI)
   4.6 Medico-legal aspects of identification

5. **Forensic Sciences**
   5.1 Locard’s principle in crime investigation
   5.2 Trace evidences and importance in crime investigation
5.3 Blood and blood stains in investigation of criminal and civil cases
5.4 Semen and seminal stains in crime investigation
5.5 Saliva, hairs and other biological samples in different criminal situations
5.6 Analytical toxicology and its importance in determining the cause of death
5.7 Role of DNA analysis in civil and criminal cases
5.8 Analysis of trace evidence in ballistics and explosions
5.9 Role of fingerprint, foot print, lying detector and questioned documents in investigation and adjudication of justice
5.10 Situation of the forensic science laboratories in Nepal

6. Forensic Anthropology
6.1 Analysis of race, sex, age and stature from bones
6.2 Time since death and cause of death in skeletal remains examination
6.3 Personal identification from skeletal remains analysis

7. Medical Imaging
7.1 Application of radiological methods in age estimation and personal identification
7.2 Application of radiological methods in autopsy work
7.3 Study of X-rays, CT scans MRIs and other medical imagings
7.4 Virtual autopsy

8. Forensic Odontology
8.1 Application of dental information in age estimation and personal identification
8.2 Dental data and disaster victim identification
8.3 Bite marks analysis in crime investigation

9. Forensic Toxicology
9.1 Medical and legal duties of health workers in cases of poisoning
9.2 Corrosive poisons
9.3 Irritant poisons
9.4 Neurotoxins
9.5 Cardiac poisons
9.6 Asphyxiants
9.7 Domestic poisons
9.8 Poisoning by therapeutic substances
9.9 Food poisoning and poisonous foods
9.10 Drug dependence and drug abuse
9.11 Alcohol and its medico-legal aspects; examination of drunkenness

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