

प्रदेश लोक सेवा आयोग

बागमती प्रदेश

मदन भण्डारी स्वास्थ्य विज्ञान प्रतिष्ठान

प्राध्यापन सेवा, मेडिकल समूह, क्लिनिकल प्याथोलोजी उपसमूह, नवौ तह, लेक्चरर पदको खुला प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

यस खुला प्रतियोगितात्मक परीक्षामा उम्मेदवार छनौटको आधार निम्न बमोजिम हुनेछः

आधार	अङ्कभार
शैक्षिक योग्यता	२०
अनुसन्धान तथा कृति प्रकाशन	३०
लिखित परीक्षा	२००
अन्तर्वार्ता	५०
जम्मा	३००

प्रथम चरण : लिखित परीक्षा

पूर्णाङ्क: २००

Paper	Subject	Marks of Parts	Number of Questions & Weightage	Full Marks	Pass Marks	Time Allowed
I	General Subject	50	Part I: Research, Biostatistics and Ethics 2x10=20 (Long answer) [LAQ]	100	40	3.00 hours
			6x5=30 (Short answer) [SAQ]			
		40	Part II: Health Professions Education 1x10=10 (Long answer) [LAQ]			
			6x5=30 (Short answer) [SAQ]			
10	Part III: Relevant Acts and Laws 5x2=10 (Multiple Choice) [MCQ]					
II	Technical Subject	-	20x1=20 (Multiple Choice) [MCQ]	100	40	3.00 hours
			8x5=40 (Short answer) [SAQ]			
			2x20=40 (Problem-based) [PBQ]			

द्वितीय चरण : अन्तर्वार्ता

पूर्णाङ्क: ५०

द्रष्टव्य :

- लिखित परीक्षाको माध्यम भाषा अंग्रेजी हुनेछ ।
- प्रथम पत्रको बहु-वैकल्पिक प्रश्नको प्रत्येक सहि उत्तर वापत २ अङ्क र द्वितीय पत्रको बहु-वैकल्पिक प्रश्नको प्रत्येक सहि उत्तर वापत १ अङ्क प्रदान गरिनेछ भने प्रत्येक गलत उत्तर वापत २०% अङ्क कट्टा गरिनेछ ।
- प्रथम पत्रको Part-I, Part-II र Part-III को लागि छुट्टाछुट्टै (Part-I को लागि एउटा, Part-II को लागि एउटा र Part-III को लागि एउटा) उत्तरपुस्तिका हुनेछ भने द्वितीय पत्रको Part-I र Part-II को लागि पनि छुट्टाछुट्टै (Part-I को लागि एउटा र Part-II को लागि एउटा) उत्तरपुस्तिका हुनेछ ।

४. Paper I - General Subject को पाठ्यक्रम बमोजिमको विषयगत अङ्कभार निम्न बमोजिम हुनेछः

पाठ्यक्रमको भाग	Part I: Research, Biostatistics and Ethics							
प्रश्न न.	1	2	3	4	5	6	7	8
किसिम	LAQ	LAQ	SAQ	SAQ	SAQ	SAQ	SAQ	SAQ
पाठ्यक्रमको बुँदा न.	1.3	2.2	1.2	1.1	1.4	2.1	2.3	3

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पाठ्यक्रमको भाग	Part II: Health Professions Education						
प्रश्न न.	9	10	11	12	13	14	15
किसिम	LAQ	SAQ	SAQ	SAQ	SAQ	SAQ	SAQ
पाठ्यक्रमको बुँदा न.	2	1	3	4	5	6	7

पाठ्यक्रमको भाग	Part III: Relevant Acts and Laws				
प्रश्न न.	16	17	18	19	20
किसिम	Multiple Choice Questions (MCQ)				
पाठ्यक्रमको बुँदा न.	1	2	3	4	5

५. Paper II- Technical Subject को पाठ्यक्रम बमोजिमको विषयगत अङ्कभार निम्न बमोजिम हुनेछः

पाठ्यक्रम भाग	Part II: Technical Subject (Clinical Pathology)									
प्रश्न संख्या	1	2	4	2	2	2	3	2	2	
किसिम	Multiple Choice Questions (MCQ)									
पाठ्यक्रमको बुँदा न.	1	2	3	4	5	6	7	8	9	

पाठ्यक्रमको भाग	Part II: Technical Subject (Clinical Pathology)									
प्रश्न संख्या	1	1	1	1	1	1	1	1	1	1
किसिम	SAQ	SAQ	SAQ	SAQ	SAQ	SAQ	SAQ	SAQ	PBQ	PBQ
पाठ्यक्रमको बुँदा न.	1	3	4	5	6	7	8	9	2	3

६. प्राध्यापन सेवा अन्तर्गतका सबै समूह/उपसमूहहरूको लागि प्रथम पत्रको पाठ्यक्रमको विषयवस्तु एउटै हुनेछ।तर द्वितीय पत्रको पाठ्यक्रम समूह/उपसमूह अनुरूप फरक फरक हुनेछ ।

७. यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जुनसुकै कुरा लेखिएको भएता पनि पाठ्यक्रममा परेका कानूनहरू परीक्षाको मिति भन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधित भई हटाईएका) कायम रहेकालाई यस पाठ्यक्रममा परेको मानिनेछ ।

८. पाठ्यक्रम लागू हुने मिति: २०७८/०८/१२

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लिखित परीक्षाको पाठ्यक्रम
Paper-I: General Subject

Part I: Research, Biostatistics and Ethics (50 marks)

1. Research

- 1.1. Research principles (Scientific Method) and research proposal development
- 1.2. Ethical clearance
 - 1.2.1. Research ethics on non-vulnerable population
 - 1.2.2. Research ethics on vulnerable population
 - 1.2.3. Roles of regulatory bodies
 - 1.2.3.1. National Health Research Council (NHRC), its guidelines and Ethical Review Board
 - 1.2.3.2. Institutional Review Committees, formation, use and mandate, coordination with NHRC
- 1.3. Research methods and materials
 - 1.3.1. Sample selection and randomization
 - 1.3.2. Sample size calculation
 - 1.3.3. Ensuring reliability and validity of the instruments
 - 1.3.4. Methods proposed for health research
 - 1.3.4.1. Quantitative studies: Study design (including systematic review and meta-analysis and Double blind RCT), inclusion and exclusion criteria, sample size calculation, tool development and validation techniques, data management (good practice on data entry, data verification, data cleaning)
 - 1.3.4.2. Qualitative studies: Guiding questions, Saturation point, memo, notes, transcribe, themes,
- 1.4. Research writing
 - 1.4.1. Abstract Section: writing abstract or executive summary for the appropriate study/research
 - 1.4.2. Introduction Section: Background, Rationales, Statement of the Problem, Aim and Objectives of the research, research hypothesis
 - 1.4.3. Methodology Section: Research protocol
 - 1.4.4. Result Section: Presentation of results, tables, graphs, diagrams, plots, maps
 - 1.4.5. Discussion Section: Compare and contrast the results, literature review and citation, limitation of the study
 - 1.4.6. Conclusion section: writing conclusion, lesson learnt, and recommendation for appropriate research studies
 - 1.4.7. Publication ethics, plagiarism including self-plagiarism, and peer-reviewing
 - 1.4.8. Commonly used referencing styles

2. Biostatistics

- 2.1. Descriptive statistics
- 2.2. Inferential statistics with statistical hypotheses and appropriate tools/methods for quantitative studies, commonly used statistical softwares, and data visualization
- 2.3. Data analysis for qualitative data - theme and code generation, thematic analysis, content analysis, grounded theory for qualitative and triangulation for mixed method studies

3. Ethics

- 3.1. Principles of medical ethics
- 3.2. Human dignity and human rights
- 3.3. Benefit and Harm
- 3.4. Autonomy and Individual responsibility
- 3.5. Consent and capacity to consent
- 3.6. Privacy and confidentiality
- 3.7. Equality, justice and equity
- 3.8. Non-discrimination and non-stigmatization
- 3.9. Respect for cultural diversity and pluralism

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3.10. Solidarity and cooperation

3.11. Professionalism

Part II: Health Professions Education (40 marks)

1. Achievements and Challenges of Health Professions Education

1.1. Definition of health professions education

1.2. History

1.3. Current status of health professions education – global and Nepal

1.4. Changes proposed or required in health professions education after the Coronavirus pandemic

1.5. International dimensions of health professions education – standards, trends, and challenges

1.6. Advances in Health Professions Education

1.6.1. Health professions education research

1.6.2. Involving patients as educators

1.6.3. Digital technologies in health professional education

2. Curriculum Planning and Development

2.1. Definitions of curriculum, syllabus, and microsyllabus

2.2. Theories of curriculum design in health professions education

2.3. Types of curricula

2.4. Undergraduate Curriculum

2.4.1. Forces shaping the undergraduate curriculum

2.4.2. Critical components of the undergraduate health professions education programs

2.5. Postgraduate Medical Education

2.5.1. Key elements of postgraduate health professions education programs

2.5.2. Competency-based health professions education

2.6. The Hidden Curriculum

2.6.1. Definition

2.6.2. Applications: exploring/assessing the hidden curriculum

2.7. Curriculum themes

2.7.1. Curricular models – traditional, SPICES, PRISMS

2.7.2. Relevance of foundational sciences (basic sciences) to the curriculum

2.7.3. Social and behavioral sciences in the curriculum

2.7.4. Clinical Communication Skills in the curriculum

2.7.5. Professionalism, ethics, empathy, and attitudes in the curriculum

2.7.6. Medical research in the curriculum

2.7.7. Evidence-based medicine in the curriculum

2.7.8. Medical humanities in the curriculum

2.7.9. Integrative medicine in the curriculum

2.7.10. Clinical reasoning in the curriculum

2.7.11. Information management in the digital era in the curriculum

3. Learning Situations

3.1. Science of learning

3.1.1. Assumptions around learning

3.1.2. Multiple definitions of learning

3.1.3. Learning theories and strategies

3.1.4. Metacognition

3.1.5. Learning skills and learning styles

3.1.6. Learning approaches and contexts

3.2. Lectures in health professions education

3.2.1. Pros and cons of lectures as a primary learning event

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- 3.2.2. Learning in a lecture environment
- 3.2.3. Organizing a lecture
- 3.2.4. Developing teaching materials
- 3.2.5. Active learning in the lecture hall
- 3.3. Learning in small groups
 - 3.3.1. Definition of small group learning
 - 3.3.2. Situations for using small group learning
 - 3.3.3. Conducting a small group learning session effectively
- 3.4. Clinical teaching
 - 3.4.1. Definitions
 - 3.4.2. Educational strategies for clinical teaching – inpatient, outpatient, ward, hospital units, and ambulatory care
- 3.5. Learning in community settings - urban and rural communities
 - 3.5.1. Community posting and health camps
 - 3.5.2. Community-based learning
 - 3.5.3. Use, importance, and outcomes in Nepal and beyond
- 3.6. Workplace-based learning
 - 3.6.1. Experiential learning
 - 3.6.2. Learning in longitudinal integrated clerkships
 - 3.6.3. Continuing professional development
- 3.7. Learning in a Simulated Environment
 - 3.7.1. Terminologies and definitions
 - 3.7.2. Simulated patients and role plays
 - 3.7.3. Simulation in the skill lab
- 3.8. Independent learning and distance education
 - 3.8.1. Self-directed learning
 - 3.8.2. Self-regulated learning
 - 3.8.3. Digital world and distance learning
 - 3.8.4. Digital literacies for independent learning and distance learning
- 3.9. Outcome-Based Education
 - 3.9.1. Definitions
 - 3.9.2. Implementation of outcome-based education
- 3.10. Integrated Learning
 - 3.10.1. Definitions
 - 3.10.2. Rationale for integrated learning
 - 3.10.3. Curricular/program integration
 - 3.10.4. Horizontal versus vertical integration
 - 3.10.5. Course level versus session level integration and the benefits of causal networks
 - 3.10.6. Strategies to achieve integrated learning at the session level
 - 3.10.7. Challenges to integration
- 3.11. Interprofessional Education
 - 3.11.1. Interprofessional education and collaborative practice
 - 3.11.2. Evidence for the effectiveness of interprofessional education
 - 3.11.3. Theories underpinning interprofessional education and interprofessional collaborative practice
 - 3.11.4. Implementation of interprofessional education
- 3.12. Problem-Based Learning
 - 3.12.1. Philosophy, principles, and techniques
 - 3.12.2. Implementation of problem-based learning

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3.13. Team-Based Learning

3.13.1. Philosophy, principles, and techniques

3.13.2. Implementation of team-based learning

4. Assessments

4.1. Basics of assessments

4.1.1. Measurement theories

4.1.2. Types of assessment

4.1.3. Qualities of good assessment

4.1.4. Score interpretation

4.1.5. Self-assessment

4.1.6. Objective versus subjective assessments

4.1.7. Formative versus summative assessments

4.2. Written assessment

4.2.1. Types of written assessment

4.2.2. Response formats

4.2.3. Stimulus formats

4.3. Performance and workplace assessment

4.3.1. Types of performance assessment

4.3.2. Assessments of clinical skills and competence

4.3.3. Assessing performance in the workplace

4.4. Portfolios, projects, and theses

4.4.1. Objectives and contents of portfolios

4.4.2. Portfolio assessment

4.4.3. Thesis and project work

4.5. Feedback, reflection, and coaching

4.5.1. Giving feedback

4.5.2. Critical reflection

4.5.3. Coaching in health professions education

4.6. Assessment of attitudes and professionalism

4.6.1. Rationales

4.6.2. Tools

4.7. Programmatic Assessment

4.7.1. Definition

4.7.2. Approach

5. Students and Trainees

5.1. Selection of students and trainees - types of selection errors

5.2. Students and trainees in need of additional support

5.3. Student engagement in the educational program – peer-to-peer teaching

5.4. Professional identity and career choice

6. Health Professional Teachers

6.1. The changing roles of the medical teacher

6.2. The teacher as an information provider and coach

6.3. The teacher as a facilitator and mentor

6.4. The teacher as a curriculum developer and implementer

6.5. The teacher as an assessor and diagnostician

6.6. The teacher as a role model as teacher and practitioner

6.7. The teacher as a manager and leader

6.8. The teacher as a scholar and researcher

6.9. The teacher as a professional

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7. Health Professional Schools

- 7.1. Health professions education leadership
- 7.2. Role in curriculum evaluation
- 7.3. Role in teacher evaluation
- 7.4. Role in social accountability
- 7.5. Role in faculty development program and mentoring
- 7.6. Role in providing the educational environment
- 7.7. Role in maintaining the well-being of health professional teachers, staff, and students

Part III: Relevant Acts and Laws (10)

1. Madan Bhandari Academy of Health Sciences
 - 1.1. Act, Mission, Goals, Organogram
 - 1.2. Scope and function of Madan Bhandari Academy of Health Sciences executive bodies (Senate, Executive Committee, Academic Council, Faculty Board, Hospital Management Committee, Subject Committee) and various other committees
2. Constitution of Nepal (Part 1 to 5, 13 to 23 and All Schedules 1-9)
3. Health-related provisions
 - 3.1. Health related aspects of Sustainable Development Goals (SDGs)
 - 3.2. Ministry of Health and Population
 - 3.3. Ministry of Health of Bagmati Province
4. Health Insurance
 - 4.1. Health Insurance Act, 2074
 - 4.2. Health Insurance Regulation, 2075
 - 4.3. Social Health Security (Health Insurance) Program
5. General Information
 - 5.1. Prevention of Corruption Act, 2059
 - 5.2. Right to Information Act, 2064
 - 5.3. Knowledge on Geographical, Economical and Social Sectors of Bagmati Province

Paper-II: Technical Subject

1. General Pathology

- 1.1. Cellular adaptation, injury, and death: Mechanism of cell injury, effects of the sublethal and lethal injury. Mechanism and relevance of apoptosis, necrosis and necroptosis, Adaptations – in cells and tissues, intracellular accumulations, pigment accumulations, degenerations, and aging.
- 1.2. Acute and chronic inflammation: general features, cells, and chemical mediators involved, events, outcome
- 1.3. Tissue repair and renewal: Normal cell proliferation and tissue growth, their control, mechanism of tissue regeneration, repair by healing, scar, and fibrosis, healing by first and second intention, factors affecting wound healing,
- 1.4. Hemostasis and hemodynamic disorders: Pathogenesis and effects.
- 1.5. Basics of genetic diseases and their diagnosis: Criteria and methods of their identification.
- 1.6. Basics of immunology and immunological diseases including hypersensitivity reactions, autoimmune diseases, immunodeficiency syndromes, amyloidosis
- 1.7. Basics of molecular and cellular oncology: etiological factors, latest developments in understanding the molecular basis of cancer development and behavior. General principles of nomenclature, classification, grading, and staging
- 1.8. Basics of environmental and nutritional pathology: Effects of important environmental, nutritional, and other factors and their identification
- 1.9. Basics of infectious disease pathology: Effects of important infectious agents, other factors and their identification

2. Surgical Pathology

- 2.1. Components of the surgical pathology report, limitation of histological diagnosis
- 2.2. Information system in surgical pathology, digital pathology, and telepathology
- 2.3. Automated surgical pathology
- 2.4. Legal aspects of surgical pathology
- 2.5. Gross techniques in surgical pathology: Gross room, handling of specimens, general principles, photography, radiography, guidelines for handling common specimens
- 2.6. WHO classification of tumors of various systems, their grading, and staging
- 2.7. Synoptic reporting system

3. Systemic pathology

- 3.1. Gross anatomy, relevant physiology, and histology of specimens and tissues of gastrointestinal, cardiovascular, respiratory systems, genitourinary system, male and female reproductive system, Endocrine system, central nervous system, peripheral nervous system, musculoskeletal system, and neurosensory system
- 3.2. Pathology of skin disorders: Inflammatory diseases, dermatoses, vesiculobullous diseases, degenerative diseases, tumors, and tumor-like conditions
- 3.3. Pathology of disorders of oral cavity and oropharynx: Congenital anomalies, inflammatory and non-neoplastic diseases, Tumors and tumor-like conditions of surface epithelium, odontogenic epithelium, disease of temporomandibular joints. Tumors and tumor-like lesions of the salivary gland of Salivary gland
- 3.4. Pathology of disorders of endocrine system: Congenital anomalies, inflammatory lesions,

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- tumors, and tumor-like conditions of the thyroid, parathyroid, adrenal glands and paraganglia, pituitary, hypothalamus.
- 3.5. Pathology of disorders of respiratory system and mediastinum: Inflammations, cysts, neoplastic diseases of larynx and trachea. Pleuritis, tumors of pleura, Nonneoplastic diseases of the lung. Lung tumors. Cyst in the mediastinum, mediastinal tumors
 - 3.6. Pathology of disorders of the urinary tract: Congenital anomalies, cystic diseases of the kidney, Glomerular lesion associated with nephrotic and nephritic syndrome, vascular lesions, Hereditary diseases, pyelonephritis, interstitial nephritis, renal transplant rejection, lithiasis. Tumors, tumor-like conditions.
 - 3.7. Pathology of disorders of the male reproductive system: Congenital anomalies, cryptorchidism, atrophy and infertility, Tumors of testes and para-testicular tissue, hydrocele, Prostatitis, Prostatic, hyperplasia, Tumors of the prostate
 - 3.8. Pathology of disorders of the female reproductive system: Inflammatory and other non-neoplastic diseases of the vulva and vagina, Pelvic inflammatory diseases, Lesions of the cervix. Cervical intraepithelial neoplasia, Tumors of the cervix, Menstrual cycle, Endometrial dating, Non-neoplastic and neoplastic lesions of the uterus. Abortion, ectopic pregnancy, endometriosis. Lesion of the ovary, polycystic ovarian diseases, ovarian tumors, Gestational trophoblastic diseases, lesions of the placenta, Neoplastic and non-neoplastic disease of fallopian tubes, Inflammatory, other non-neoplastic and neoplastic diseases of the breast.
 - 3.9. Pathology of disorders of hepatobiliary system: Viral hepatitis, Cirrhosis, Alcohol, drug and toxin-induced liver injury, Cholestasis disorders of metabolism, vascular disorders, Liver diseases in pregnancy, Liver involvement in systemic illness, Liver pathology in organ transplant, tumors and tumor-like conditions of the liver, Cholelithiasis, cholecystitis, Tumors of gall bladder and intra as well as extrahepatic bile ducts, Pancreatitis, tumors, and tumor-like conditions pancreas, Ampullary carcinoma.
 - 3.10. Pathology of disorders of the gastrointestinal tract: Congenital anomalies of GIT, Reflux and other esophagitis, tumors and tumor-like conditions of esophagus Gastritis and Peptic ulcers, Polyps of stomach and intestine, tumors and tumor-like conditions of the stomach, Gastrointestinal stromal tumors, Malabsorption, Diseases associated with malabsorption, inflammatory bowel disease, Intestinal obstruction, AIDS-related inflammatory diseases of the intestine, tumors and tumor-like conditions of the intestine, infections, hemorrhoids, rectal prolapse, diseases of peritoneum ,and retroperitoneum
 - 3.11. Pathology of disorders of the cardiovascular system: congenital anomalies, Myocardial infarction, atherosclerosis, vasculitis, and other vascular disorders, Hypertension, Tumors of heart and pericardium, Rheumatic heart diseases, infective endocarditis, valvular anomalies, myocarditis and cardiomyopathies, blood vessels tumors
 - 3.12. Pathology of disorders of the musculoskeletal system: Histochemistry of Muscle biopsy, Muscle diseases, atrophies, neuromuscular junction disorders, myopathies Fractures, Osteomyelitis, Paget's disease, osteopetrosis, tumors and tumor-like lesions of bone Non-neoplastic diseases of joints, gout, rheumatoid arthritis, osteoarthritis, tumors and tumor-like lesions of joints, histopathological evaluation of bone marrow biopsies
 - 3.13. Pathology of disorders of the neurosensory system, including special senses: Congenital anomalies, cerebrovascular accidents, inflammatory and infectious diseases of CNS, meningitis, Tumors of brain and meninges, Neuropathies, Diseases of peripheral nerves,

Inflammatory and infectious disease of eye and ear, tumors and tumor-like lesions of eye and ear.

- 3.14. Pathology of disorders of the hematopoietic system: RBC disorder, WBC disorder, Hemostasis, and coagulation disorder.
- 3.15. Pathology of disorders of the lymphoreticular system: Lymphoreticular system: Lymph node evaluation, patterns of hyperplasia, Inflammatory/hyperplastic disease of lymph node, malignant lymphomas, metastatic tumors, Congenital anomalies of the spleen, neoplastic and non-neoplastic diseases of the spleen, Hypersplenism.

4. Cytopathology

- 4.1. Role of diagnostic cytology
- 4.2. Structure and function of cells, morphological features of dysplasia
- 4.3. Basic cytogenetics
- 4.4. Chromosomal aberration in cancer
- 4.5. Clinical application of conventional cytogenetics and molecular methods in cytology
- 4.6. Evaluation of various samples in conventional smears and liquid-based preparations
- 4.7. Cell blocks and their use in cytological diagnosis
- 4.8. Immunochemistry and Molecular Biology in Cytological Diagnosis
- 4.9. Digital Analysis of Cells and Tissues
- 4.10. Flow Cytometry
- 4.11. Advanced techniques in diagnostic cytopathology
- 4.12. Gynecological Cytopathology
- 4.13. Non-gynecologic cytopathology
- 4.14. Circulating cancer cells

5. Fine needle aspiration cytology

- 5.1. Techniques of fine-needle aspiration, smear preparation, and principles of interpretation
- 5.2. Imaging methods for the guidance of aspiration cytology
- 5.3. Diagnostic pitfalls of FNAC
- 5.4. FNAC diagnosis and differential diagnosis of various lesions

6. Forensic pathology

- 6.1. Types of autopsies, its purpose, procedure of various types of autopsy
- 6.2. Collection of various organs and specimens for forensic pathology
- 6.3. Use of conventional and special stains and immunohistochemical procedures in forensic pathology
- 6.4. Post mortem findings in various conditions
- 6.5. Forensic evaluation of pregnancy-related death, death in newborns, and sudden infant death syndrome
- 6.6. Cytological diagnosis in sexual offenses
- 6.7. Histo Thanatology: autolysis, putrefaction, mummification

7. Histo/cyto techniques

- 7.1 Organization of Histopathology/cytopathology Laboratory
- 7.2 Various Histological equipment, their uses, and care
- 7.3 Reception and recording of specimen
- 7.4 Theory of routine (H/E, Pap) and special stains and their practical implication
- 7.5 Preparation, reagent preparation, procedure, and quality control of all routine and special stains

used in Histopathology/cytopathology

- 7.6 Grossing technique of various surgical specimens
- 7.7 The technique of processing various tissues including bone for histological studies, Errors in sectioning, and remedies
- 7.8 Frozen section and their uses, processing tissue for frozen section and its interpretation
- 7.9 Demonstration of pigments and minerals (malarial, mercury, bile, lipofuscin, calcium, iron, copper)
- 7.10 Demonstration of neuron, neuroglia, myelin, and axon
- 7.11 Stains for bacteria, AFB, fungi, amoeba in tissue
- 7.12 Preparation of cell blocks and their interpretation
- 7.13 Mailing of slides
- 7.14 Fine needle aspiration techniques involved in the preparation of smear and staining
- 7.15 Different types of cytology specimens, their preservation, and transport, Processing of various cytology specimen, smear preparation, and staining
- 7.16 Liquid-based cytology; principle, instruments, procedure advantage, disadvantage
- 7.17 Cytocentrifuge and its uses in diagnostic cytopathology
- 7.18 Immunocytochemistry: Principle, Procedure, uses, quality control, Immunohistochemical markers of various neoplasms
- 7.19 Use of microwaves in histopathology/cytopathology
- 7.20 Principle and use of flow cytometry in cytopathology
- 7.21 Preparation and Quality control of various stains, reagents, and methods used in histopathology/ cytology
- 7.22 Molecular methods in histopathology and cytopathology
- 7.23 Principle, method and use of In-situ Hybridization, recent methods in hybridization techniques
- 7.24 Enzyme histochemistry: principle, reagent and specimen preparation, procedure and application
- 7.25 Electron microscopy
- 7.26 Histometry, analysis of proliferation
- 7.27 Tissue culture techniques, HLA typing
- 7.28 X-ray microanalysis

8 Laboratory hemato-techniques:

- 8.1 Basic routine hematology stains
- 8.2 Tests for RBC, WBC, and bleeding and clotting disorders
- 8.3 Bone marrow aspiration and biopsy
- 8.4 Automated blood cell counters
- 8.5 Interpretation of peripheral blood smear and bone marrow aspiration and biopsy techniques

9 Laboratory management

- 9.1 Fundamentals of Total Quality management
- 9.2 Statistical process in quality control
- 9.3 Element of quality assurance program
- 9.4 Concept of Evidence-based medical practice
- 9.5 Concept of critical values and alert values in laboratory practice
- 9.6 The laboratory information system
- 9.7 Concept of reference laboratory

प्रदेश लोक सेवा आयोग
बागमती प्रदेश
मदन भण्डारी स्वास्थ्य विज्ञान प्रतिष्ठान
प्राध्यापन सेवा, मेडिकल समूह, क्लिनिकल प्याथोलोजी उपसमूह, लेक्चरर पद, नवौ तहको खुला प्रतियोगितात्मक परीक्षाको
पाठ्यक्रम

- 9.8 Implementation of the reference system in laboratory medicine
- 9.9 Standard operating procedures and their preparation
- 9.10 Errors and identification of the source of error in the hematology laboratory
- 9.11 Internal and External quality control and proficiency testing
- 9.12 Preparation of quality policy manual
- 9.13 Laboratory Accreditation, Key component of accreditation, ISO 15189 and other laboratory related accrediting bodies
- 9.14 Quality control in procedure, equipment, NEQAS, EQAS
- 9.15 Health and Safety measures (Physical/Chemical/Biological/Radiation)
- 9.16 Waste disposal
- 9.17 Management of under-resourced laboratory
