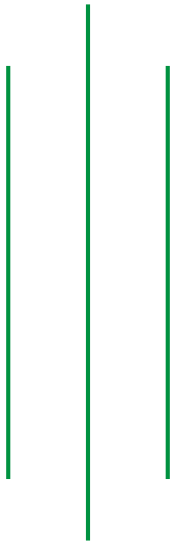
Syllabus for Licensing Examination of M.Sc. MLT/Medical/Clinical Bio-Chemistry 2021



Nepal Health Professional Council

Basbari, Kathmandu

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Management issues

- Management: - concept, principles, functions, scope, role, level and skills of managers
- Laboratory Management: Leadership role, manpower management, planning and implementation of operation protocols
- Financial management: concept, approaches, budget formulation and implementation, auditing and topics related to fiscal management
- Human resource management: concept, functions and different aspects
- Planning: concept, principles, nature, types, instrument and steps
- Leadership: concept, functions, leadership styles, leadership and management effectiveness
- Communication: concept, communication process and barrier to effective communication, techniques for improving communication

General Health issues

- Present Constitution of Nepal (health and welfare issues)
- National Health Policy, 2071
- Second long term health plan (1997-2017)
- Health services act 2053, health service regulation, 2055
- Nepal health Professional Council Act and its related regulations
- Medical/Laboratory code of ethics in general and its application
- Organizational structure of Ministry of Health at National, Regional and District and below
- International health agencies: role and responsibilities of WHO, UNICEF, UNFPA and interagency relationships
- Monitoring and evaluation system in health
- Health management information system
- Health insurance and financing in health care
- Effects of environment in public health: air pollution, domestic pollution, noise pollution
- Importance of water, sanitation and hygiene in public health
- Effects of disaster in public health: deforestation, land slide, flood, earthquake and fire
- Health volunteers involvement in health service delivery
- Community involvement in health service delivery
- Counseling: - concept, type, importance and its application in health service delivery.

Acid base and Electrolyte:

Acid-Base, pH, Henderson Hasselbach equation, pH measurements, Buffer solutions, biological membrane and transport system, GIBBS donnan equilibrium, Acid base regulation and its disorders, Water and electrolyte Imbalance and measurement of electrolytes

Biomolecules: Carbohydrate, protein, Lipid, Nucleic Acid, Vitamins, minerals

Instrumentation in Biochemistry: Centrifuge, Water Bath, Electronic Balance, pH Meters, Pipettes, Glassware, Dispensers, Hot Air Oven, Colorimeter, visible and ultraviolet spectrophotometer, turbidimetry, nephelopmetry, fluorimetry, flame Photometer, ion selective electrodes, atomic adsorption and mass spectrometry, Chromatography and applications in biochemistry

Electrophoresis and application in biologic systems: Serum Protein, Lipoprotein and Hemoglobin Electrophoresis and their application in disease diagnosis

Enzymes: Role of enzymes in disease diagnosis and treatment

Metabolism: Carbohydrate, protein, Lipid, Nucleic Acid, Role of vitamins and mineral in metabolism

Inborn Errors of Metabolism (Congenital disorders):

Metabolic disorder in Carbohydrate Amino acids, Lipids and Lipoprotein, Nucleic Acids metabolism disorders, laboratory findings, and their management

Organ function Tests: Liver function test, renal function test, pancreatic function test, Cardiac Function test

Systemic Biochemistry: Role of Biochemistry in Gastrointestinal and Hepatobiliary System, Respiratory System and Acid Base Balance, Cardio - Vascular System, Renal System and Electrolyte Balance, Endocrine and Metabolic System, Reproductive System and Infertility, Neurological System, Musculoskeletal System

Analytical Biochemistry and Data Interpretation: Knowledge, principle, application and predictive values for biochemical tests along with their interpretation and effect of biological/ physiological variation in biochemical tests results. Normal or reference ranges and clinically significant limits and the therapeutic and toxic level of drugs

Molecular Basis of cancer and Estimation, interpretation of Tumor Markers (AFP, B-hCG, CEA, CA-125, CA 19-9, CA 15-3, PSA etc).

Biochemical changes in Pregnancy and Related Disorders

Body Fluids: Biochemical analysis of ascetic, peritoneal, pleural and synovial fluids, CSF and urine analysis

Automation (Autoanalyzers, Automated Immunoassays) and recent advances in Biochemistry:

Molecular Techniques in disease diagnosis: PCR, RT-PCR, RDT, cloning, blotting techniques

- Transplant immunology and tumor immunology
- Waste management and Laboratory Hazards
- Therapeutic drug monitoring (TDM) and its application
- Nutritional Biochemistry
- Pediatrics and *Geriatrics Biochemistry*

Total Quality management in clinical biochemistry, Quality assessment /trouble shooting, Safety, laboratory statistic, communication with clients, laboratory information systems,

Laboratory accreditation and ISO15189:2017