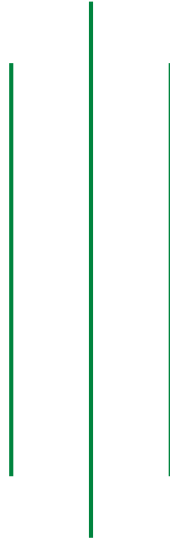


# **Syllabus for Licensing Examination of B.Sc. Medical Microbiology 2021**



**Nepal Health Professional Council**

Bansbari, Kathmandu

## Table of Content

S.No.	Subject	Marks
1	Bacteriology	25%
2	Parasitology	15%
3	Virology	10%
4	Mycology	10%
5	Immunology	10%
6	Research methodology and Biostatistics	5%
7	Anatomy and physiology	6%
8	Molecular biology	7%
9	Instrumentation	5%
10	Applied microbiology	5%
11	Health system and health policy of Nepal	2%
	<b>Total</b>	<b>100%</b>

## Bacteriology

1. Historical background, scope and importance, branches and application of microbiology
2. Safety measures, infection control practices and biomedical waste disposal
3. Importance and application of sterilization and disinfection
4. Composition, preparation, storage, uses, types and quality control of culture media
5. Importance and application of different staining procedures
6. Antimicrobial drugs and their mode of actions, antimicrobial susceptibility test and drug resistance , evaluation of antimicrobial agents, detection of drug resistance
7. Organization, management and quality control of microbiology laboratory for the district and zonal hospital
8. collection, transport, preservation and processing of different clinical specimens for aerobic, microaerophilic and anaerobic culture
9. Taxonomy, Morphology, Metabolism, Cultural Characteristics, Pathogenesis, laboratory diagnosis, Prevention and control of different clinically important bacteria
  - a. Aerobic and anaerobic Gram positive cocci
  - b. Gram negative cocci
  - c. Aerobic and anaerobic Gram negative bacilli
  - d. Gram positive bacilli
  - e. Other Gram indeterminate bacteria
10. Epidemiology, mode of transmission, pathogenesis, laboratory diagnosis, prevention and control of systemic infectious diseases.
11. Investigation and control of community outbreaks and hospital associated outbreaks and epidemiological markers.
12. Need of Care, handling and use of laboratory animals in microbiological investigations
13. Rapid diagnosis of infectious diseases by use of conventional and molecular techniques

## Parasitology

1. Taxonomy, classification, morphology, life cycle, pathogenesis, laboratory diagnosis, prevention and control of different types of Protozoal and Helminthic parasites
2. Collection and preservation of clinical specimens for parasitic investigations
3. Urine routine analysis and special test
4. Semen Analysis
5. Stool analysis by various techniques
6. Parasitic culture and egg counting technique
7. Blood parasites and its lab diagnosis

## Mycology

1. Taxonomy, classification, Morphology, Cultural Characteristics, Pathogenesis, laboratory diagnosis, Prevention and control of different clinically important yeasts and molds.
2. Mycological procedures for identification of molds and yeast

## **Virology**

1. Taxonomy, classification, Morphology, replication, Culture techniques, Pathogenesis, laboratory diagnosis, Prevention and control of different clinically important viruses
2. Virus culture techniques
  - o Biological host
  - o Embryonated egg inoculation
  - o Cell culture
3. Emerging and re-emerging viruses
4. Development, standardization, use of vaccines and antisera

## **Immunology**

1. Structure, organization, function and disorders of human immune system
2. Principle, procedure, application of different immunological techniques

## **Research Methodology & Biostatistics**

### **Research and Literature in Clinical Laboratory**

1. Description of research, types of research and its use in medical and laboratory sciences
2. Research tools, bioinformatics
3. Role of seminar and conference, literature on research.

### **Biostatistics**

1. Measures of central tendency (Mean, Median, Mode, Weighted Average and Geometric mean), Measures of dispersion (Range, Quartile deviation, Standard deviation, Coefficient of variation)
2. Correlation and regression analysis; Scatter diagram, Cause and effect relationship between two variables; Least square method for estimating regression parameters and prediction
3. Hypothesis and tests of significance, Z test, t-test, Chi-square test
4. Sampling theory; Probability and non-probability; Selecting an appropriate sampling design; sampling errors and the sample size

### **Anatomy & Physiology**

1. Cell and tissue structure and Function
2. Overview of Digestive system, Respiratory system, Nervous system, Circulatory system, Excretory system, Reproductive system, skeletal system, muscular system, integumentary system
3. Endocrinology and Hormones

### **Basic concept of cellular and molecular biology and molecular technique**

## Instrumentations

### Applied microbiology

- a. Public health microbiology
- b. Pharmaceutical microbiology
- c. Environmental microbiology
- d. Food and beverages microbiology
- e. Industrial microbiology
- f. Agricultural microbiology
- g. Forensic microbiology

### Subject: Health Policy And Health System

1. Health systems and health policies
2. Evolution of health services in Nepal
3. History of laboratory services in Nepal
4. Main features of National Health Policy
5. Health service delivery mechanisms in Nepal
  - a. Public sector
  - b. Private sector
  - c. Informal sector
3. Organizational structure of health service delivery in Nepal (central, regional, district, village and community level)
4. Functions and facilities at each level, roles and responsibilities of health service providers at different levels
5. Goals and targets of health sector
  - a. Five year plans
  - b. Second Long Term Health Plan
  - c. Second Nepal Health Sector Programme
6. National Health Programmes of Government of Nepal
7. Major partners in health sector (NGO/INGO, donors, multilateral agencies)
8. Rules and regulations related to health in Nepal
9. Nepal Health professional council