

काठमाण्डौ उपत्यका खानेपानी लिमिटेड
 प्राविधिक सेवा, गुणस्तर समुह, ७ तह, माईक्रोबायोलोजिष्ट पदको खुल्ला तथा समावेशी र
 आन्तरिक प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

१. प्रथम चरण : लिखित परीक्षाको योजना (Examination Scheme)

पत्र	विषय	प्रश्न संख्या x अंकभार	परीक्षा प्रणाली	समय	पूर्णाङ्क	उत्तिर्णाङ्क
प्रथम पत्र	सेवा सम्बन्धी: Microbiology	५०x१=५० १०x५=५०	बस्तुगत बहुउत्तर छोटो छोटो उत्तर	३	१००	४०

२. द्वितीय चरण : अन्तर्वार्ताको योजना

विषय	पूर्णाङ्क	परीक्षा प्रणाली
व्यक्तिगत अन्तर्वार्ता	२०	मौखिक

द्रष्टव्य : उम्मेदवारहरूले ध्यान दिनुपर्ने कुराहरु

- लिखित परीक्षाको माध्यम नेपाली/अंग्रेजी दुबै हुन सक्नेछ ।
- प्रथम चरणको लिखित परीक्षाबाट छनौट भएका उम्मेदवारहरु मात्र द्वितीय चरणको अन्तर्वार्तामा सम्मिलित हुन पाउनेछन् ।
- पाठ्यक्रममा भएका यथासम्भव सबै पाठ्यांशहरुबाट प्रश्न सोधिनेछ ।
- यस पाठ्यक्रममा जेसुकै लेखिएको भए तापनि पाठ्यक्रममा परेका ऐन, नियमहरु परीक्षाको मिति भन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाईएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ ।
- यस भन्दा अगाडि लागु भएको माथि उल्लेखित समूहको पाठ्यक्रम खारेज गरिएको छ ।
- पाठ्यक्रम लागु मिति २०७३ आश्विन ।

प्रथम पत्र
सेवा सम्बन्धी: **Microbiology**

A. Introductory Microbiology

Classification, Structure, Physiology and Identification of Common water borne pathogens. Water borne diseases, prevention and their control.

B. Classification of Microbes

Systems of classification, Numerical taxonomy, Identifying characters for classification, General properties and principles of classification of microorganisms. Systematics of bacteria, Nutritional types (definition and examples). Classification on the basis of oxygen requirement.

C. Concept of Sterilization

Definition of sterilization, dry and moist heat, pasteurization, tyndalization; radiation, ultrasonication, filtration. Physical and Chemical methods of sterilization, disinfection sanitization, antiseptics sterilants and fumigation. Determination of phenol coefficient and disinfectant. Stains and staining techniques.

D. Water Microbiology and Water Pollution:

Overview on sources of surface and ground water and its characters, Growth and survival of microorganisms in fresh water environments. Effects of Light, Hydrostatic pressure, Turbidity, P^H and Inorganic & Organic constituents on aquatic MOS.

E. Overview on water pollution:

Sources of pollution of river & water bodies and consequences. Types of pollutants and Analytical & Removal methods.

F. Water Treatments:

Principle & procedures of small scale water purification system, Principle, Procedures Technologies of treatment of Urban Water Supply System: Sedimentation, Coagulation/Flocculation, Filtration & Disinfection process and different chemicals used in these processes.

G. Drinking water quality control:

Quality control and quality assurance systems and HACCP concept. Drinking water related regulatory agencies in Nepal. National & international conventional water quality standards, WHO (Drinking Water Quality Guidelines) National Drinking Water Quality Standard (NDWQS).

H. Water Quality Analysis:

Principle & Procedures of Microbiological & Physiochemical Analysis of Water.

- a. Microbiological Parameters.
- b. Physiochemical Parameters.
- c. Inorganic parameters including heavy metals.
- d. Organic Compounds & Pesticides. \

I. Instrumentation:

- a. Working, principal, instrumentation & Application of phase contrast & Electron Microscopes.
- b. Principles types and uses of : Centrifugation technique, Electrophoresis techniques. Chromatography technique (Paper chromatography, Thin layer chromatography, Gas liquid chromatography, High performance Liquid Chromatography (HPLC)).
- c. Principle, Instrumentation, working principle of Ultraviolet & Visible Spectrometry, Atomic Absorption, Spectroscopy, Flame Photometry.