



Nepal Rastra Bank
Syllabus for
Lab Assistant
Contract

Stages of Examination

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| 1. First Stage: Written Examination | Full Marks: 100 | Pass Marks: 40 |
| 2. Second Stage: Interview | Full Marks: 20 | |

Remarks:

1. In written examination, questions shall be asked in English.
2. Objective questions will be asked.
3. 20% marks will be deducted for each incorrect answer.
4. The candidates selected from the written examination will be called for the second stage examination.
5. This syllabus is applicable from September 11, 2023.

First Stage: Written Examination Full Marks: 100 Time : 1 hour

Examination System	Section	Number of Question and Marks	Marks
Multiple Choice Questions	1	5 questions × 2	10
	2.1	10 questions × 2	20
	2.2	10 questions × 2	20
	2.3	10 questions × 2	20
	2.4	10 questions × 2	20
	2.5	5 questions × 2	10
Total	50 questions × 2 Mark		100

1. General Awareness and Contemporary Issues

- 1.1 Geographical, socio-cultural, economic and demography of Nepal
- 1.2 The Constitution of Nepal
- 1.3 Governance system and Government (Federal, Provincial and Local)
- 1.4 Government planning, budgeting and accounting system
- 1.5 Banking and financial sector of Nepal
- 1.6 Nepal Rastra Bank: history, objectives, organizational structure and functions
- 1.7 Current Macroeconomic situation of Nepal
- 1.8 Major events and current affairs of national and international importance
- 1.9 Minting in Nepal: history, current scenario and coins in Nepal

2. Technical Subject

2.1 General and Physical Chemistry

- 2.1.1. Foundation and Fundamentals: General introduction of chemistry, importance and scope of chemistry, percentage composition from molecular formula
- 2.1.2. Atomic Structure, classification of elements and Periodic Table: Modern periodic law and modern periodic table, chemical bonding and shapes of Molecules
- 2.1.3. Oxidation and Reduction, states of matter: Gaseous state, Liquid state and Solid state
- 2.1.4. Chemical equilibrium: Dynamic nature of chemical equilibrium; Ionic Equilibrium: Introduction to Acids and Bases, pH value.
- 2.1.5. Volumetric Analysis: Introduction to gravimetric analysis, volumetric analysis and equivalent weight. Law of equivalence and normality equation
- 2.1.6. Thermodynamics: Energy in chemical reactions, Internal energy, first and second law of thermodynamics, Laws of thermochemistry (Laplace Law and Hess's law)
- 2.1.7. Electrochemistry: Electrochemical series, Relationship between cell potential and free energy, Commercial batteries and fuel cells (hydrogen/oxygen)

2.2 Inorganic and Organic Chemistry

- 2.2.1. Chemistry of Metals, Non-metals Metals and Transition Metals
- 2.2.2. Basic Concept and Fundamental Principles of Organic Chemistry
- 2.2.3. Hydrocarbons: Saturated and Unsaturated hydrocarbons; Aromatic Hydrocarbons.
- 2.2.4. Chemical properties of benzene: Addition reaction, Electrophilic substitution reactions, combustion of benzene and uses.
- 2.2.5. Formation of alcohol, nitrile, amine, ether, thioether, carbylamines, nitrite and nitro alkane using haloalkanes
- 2.2.6. Chemical properties of trichloromethane: oxidation, reduction, action on silver powder, conc. nitric acid, propanone, and aqueous alkali
- 2.2.7. Carboxylic Acid and its Derivatives; Nitro Compounds and Nitrobenzene; Aliphatic amines and Aromatic amine.

2.3 Applied Chemistry

- 2.3.1. Fundamentals of Applied Chemistry
- 2.3.2. Modern Chemical Manufactures
- 2.3.3. Chemistry in the service of mankind: Polymers, Dyes, Drugs, and Pesticides
introduction and classification
- 2.3.4. Nuclear Chemistry and Applications of Radioactivity

2.4 Laboratory management

- 2.4.1 Laboratory management framework
- 2.4.2 Lab hazards and lab safety
- 2.4.3 General idea of safety precaution in the laboratory,
- 2.4.4 Care and maintenance of laboratory equipment.

2.5 Physics

- 2.5.1 Physical quantities; dimensions, scalar and vector products.
- 2.5.2 Kinematics: Velocity, acceleration and projectile motion; Dynamics: Linear momentum, Impulse, torque, Inertia
- 2.5.3 Work, Energy and Power
- 2.5.4 Heat and temperature, Thermal expansion and rate of heat flow
- 2.5.5 Electric charges, fields electric circuits and thermoelectric effect
- 2.5.6 Magnetic field, magnetic properties
- 2.5.7 Nuclear physics; electrons and photons