



**Birgunj Metropolitan city,
Office of Municipal Executive
Birgunj, Parsa**

Syllabus for the Written Examination for the Position of Environmental Inspector

S.N.	Subject	Full Marks	Pass Marks	Exam type	Number of questions *marks	Time
1.	General technical subject	100	40	Multiple choice questions (MCQS)	50 questions *2marks	45 min.
2.	Interview	20	-	Oral	-	20 min

General technical subject

Section A- 20% Marks

1. ENVIRONMENTAL FACETS

1.1 Environment: Concept, Scope and Practices

- 1.1.1 Development of human society and environment
- 1.1.2 Physical, biological and socio-economic aspects of environment and their interrelationships
- 1.1.3 Environmental degradation and manifestations (land, water and air)
- 1.1.4 Environmental movements and environmental ethics

1.2 Ecology

- 1.2.1 Population characteristics and regulations
- 1.2.2 Community characteristics, regulation and succession
- 1.2.3 Ecosystem dynamics: energy flow, biogeochemical cycles
- 1.2.4 Terrestrial biomes and characteristics

1.3 Environmental Geology

- 1.3.1 Geological materials and structures
- 1.3.2 Weathering and erosion: types, cycle and control
- 1.3.3 Mass movement: causes and mechanisms
- 1.3.4 Fluvial, glacial and aeolian environmental processes

1.4 Climatology and Hydrometeorology

- 1.4.1 Horizontal and vertical temperature distribution
- 1.4.2 Climatic systems, distribution and classifications
- 1.4.3 Floods: classification, causes, triggering factors

1.5 Global Environmental Issues

1.5.1 Global warming

1.5.2 Green economy

1.5.3 Payment for ecosystem services

1.5.4 Ozone layer depletion and acid rain

2. ENVIRONMENTAL RESOURCES

2.1 Water Resources

2.1.1 Water resources: sources, extent and assessment

2.1.2 Water resources of Nepal

2.1.3 Problems of water resource management in Nepal

2.2 Food Resources

2.2.1 Major food resources and production

2.2.2 Human nutrition and health

2.2.4 Food resources of Nepal

2.3 Energy Resources

2.3.1 Energy resources: sources and classification

2.3.2 Renewable & non-renewable energy resources

2.3.3 Environmental issues of energy use

2.3.4 Energy resource conservation practices

2.3.5 Energy resources of Nepal

2.4 Forest and Biodiversity

2.4.1 Forest types and biodiversity status of Nepal

2.4.2 Ex-situ and in-situ conservation

2.4.3 Biodiversity conservation approaches

2.4.4 Carbon sequestration

2.5 Resource Economics

2.5.1 Micro-economic analysis for accounting environmental resources

2.5.2 Environmental Kuznets curve, cost benefit analysis and resource accounting

2.5.3 Economic and regulatory instruments to control pollution

2.5.4 Climate financing

Section B- 30% Marks

3. ENVIRONMENTAL POLLUTION AND ENGINEERING

3.1 Water Pollution

3.1.1 Point and non-point sources and categories of water pollutants

3.1.2 Water pollutants effect on human health and ecosystems

3.1.3 Standard methods of water analysis

3.1.4 Principles of water and wastewater treatment

3.2 Air Pollution

3.2.1 Sources and categories of air pollutants

3.2.2 Emission, transport, receptors of air pollutants, criteria air pollutants

3.2.3 Air pollutants effects on human health, property and visibility

3.2.4 Air pollution measurement and emission estimates

3.2.5 Air pollution control

3.3 Noise Pollution

3.3.1 Noise sources and criteria

3.3.2 Health effects of noise and control mechanisms

3.4 Waste Management

3.4.1 Sources, types and composition of solid wastes

3.4.2 Issue, generation and management of e-waste, hazardous and hospital waste

3.4.3 Management of industrial and agricultural pollutants

3.5 Toxicology and Eco-toxicology

3.5.1 Acute, sub-acute and chronic toxicity

3.5.2 Dose and frequency response relationships

3.5.3 Bioassays and attributes for predicting species response to pollution stress

3.6 Climate Change

3.5.1 Climate variability and theories of climate change

3.6.2 Green development/ low carbon development

3.6.3 Climate change impacts: agriculture and food security, water resources, energy,
human health, biodiversity, settlement and infrastructure and livelihood

3.6.4 Climate change mitigation and carbon trading

3.6.5 Vulnerability/ Climate change adaptation and adaptation approaches (NAPA,
LAPA)

Section C- 20% Marks

4. ENVIRONMENTAL MANAGEMENT SYSTEMS

4.1 Environmental Assessment

- 4.1.1 Environmental assessment: evolution in global and national perspectives
- 4.1.2 Environmental assessment: process, practices, methods and tools (EIA, IEE)
- 4.1.3 Strategic environmental assessment for decision making and integrated planning

4.2 Environmental Management Systems (EMS) & Modeling

- 4.2.1 Concept, components and stages of EMS
- 4.2.2 ISO 14000 series, standards and certification systems
- 4.2.3 Life cycle assessment and environmental labeling

4.3 Remote Sensing & GIS

- 4.3.1 Concept, scope and stages in remote sensing and GIS
- 4.3.2 Remote sensing image: acquisition, resolution, analysis and interpretation
- 4.3.4 GIS applications in assessing environmental studies

4.4 Environmental Statistics

- 4.4.1 Sampling, data analysis and interpretation
- 4.4.2 Central tendency, measures of dispersion
- 4.4.3 Correlation and regression
- 4.4.4 Parametric and non-parametric tests

4.5 Environmental Governance

- 4.5.1 Institutional arrangement (organogram) and environmental governance; concerned stakeholders and networks
- 4.5.2 Governance tools and strategies
- 4.5.3 Adaptive management and sustainability

Section D- 30% Marks

5. LEGAL FRAMEWORKS

5.1 Guidelines and Standards

Guidelines and Standards Relating to Air (Ambient, Indoor and Stack) and Water (Tolerance Limits for Industrial Effluents to be Discharged into Public Sewers and Inland Surface Waters); Specific Industrial Effluent Standards

5.2 National Legislations

Environmental Protection Act, 1996; Environment Protection Rules, 1997; National EIA Guidelines, 1993; EIA Guidelines for Forestry Sector, 1995; EIA Guidelines for Industry Sector, 1995; Plant Protection Act, 2007; National Parks and Wildlife Conservation Act, 1973; Water Resources Act, 1992; Forest Act, 1993; Soil and Watershed Management Act, 1982; Solid Waste Management Act, 2011; Pesticides Act, 1991; The Pesticide Regulation, 1994; Hydropower Development Policy, 2001; Climate Change Policy, 2011

5.3 International Treaties, Protocols & Conventions

Convention on Biological Diversity, 1992; United Nations Framework Convention on Climate Change, 1992; United National Convention to Combat Desertification, 1994; Kyoto Protocol, 1997; Vienna Convention for the Protection of the Ozone Layer, 1985; Montreal Protocol on Substances that Deplete Ozone Layer, 1987; Basel

Convention on the Control of Transboundary Movements of Hazardous Waste and Their Disposal, 1989; Stockholm Convention on Persistent Organic Pollutants, 2004;

5.4 The Constitution of Nepal

5.5 Local Government Operation Act, 2074

6. CURRENT ENVIRONMENTAL ISSUES

6.1 Urban Environment

- 6.1.1 Urbanization and its implications on environment (sanitation, solid and hazardous waste, air pollution, water pollution, groundwater depletion, food security)
- 6.1.2 Urban infrastructures and environment (housing, water supply and sanitation, transportation, electricity, markets and commercial areas, religious and heritage sites, open spaces and recreational areas)
- 6.1.3 Concept of urban planning and sustainable cities

6.2 Land use and Watershed Management

- 6.2.1 Land use and environment (land use pattern and zoning; land pooling)
- 6.2.2 Principles of land use and land reclamation
- 6.2.3. Factors governing land utilization and land use pattern
- 6.2.4 Scenario of watershed management in Nepal
- 6.2.5 Development and conservation challenges in watershed management
- 6.2.6 Watershed as ecosystems; Upstream-downstream linkages; Measures for watershed conservation

6.3 Agriculture and Food Security

- 6.3.1 Farming systems
- 6.3.2 Modern agriculture and its impacts on environment, green revolution
- 6.3.3 Sustainable agriculture and food aid policies
- 6.3.4 Food security in Nepal