

**Agriculture and Forestry University**  
**Faculty of Forestry**  
**M.Sc. Forestry (Entrance Syllabus)**

**Silviculture**

10 Questions

1. Forest types of Nepal.
2. Concept and principle of forest ecosystem, normal forest and locality factors.
3. Silvicultural practices adopted for the management of different categories of forests as specified in the Forest Act, 2049 in Nepal (e.g. community forests, leasehold forests, religious forests, plantation forests, natural forests).
4. Seed collection, handling, storage and certification.
5. Principles and practices of natural and artificial regeneration, various techniques of plant propagation, plantation establishment at different sites, types of tending operation and forest rotations.
6. Principles and methods of tree improvement.
7. Silviculture of commercial tree species of Nepal.

**Forest Management**

15 Questions

1. Understanding about common forest management terms.
2. Principles and practices of management of different types of natural and Man-made forests in general and in Nepal in particular.
3. Principles and practices of tree and forest measurement; diameter and height measurement; volume calculation of standing trees, logs and converted timber; measurement of growing stock and yield regulation.
4. Concepts and methods of timber stand improvement and shrub land management.
5. Preparation and implementation of forest operational plans, forest management plans.
6. Second generation issues in Community and leasehold Forestry in Nepal.
7. Methods and approaches to inventory of community forest and various NTFPs.

**Forest Ecology**

5 Questions

1. Concept and application of Forest Ecology and Ecosystem and Levels of Organization Hierarchy, attributes.
2. Productivity: Gross and net Productivity, Methods to measure Productivity.
3. Forest succession: Stages, causes and types, retrogression.
4. Phenotypic variation and Plasticity, Sources of Variation, ecotype.
5. Types of interaction, Competition, Tolerance, Forest stand structure.
6. Ecological assessment techniques (diversity and richness).
7. Forest Ecosystem Services Concept of Payment of Ecosystem Services.

**Agroforestry**

5 Questions

1. Classification of Agroforestry Systems.
2. Soil Productivity Aspects of Agroforestry.
3. Biomass Energy/Fuel wood Production in Agroforestry.
4. Multipurpose Trees in Agroforestry.
5. Agro forestry Management and Practices in Nepal.
6. Tree/Crop Interface.
7. Agroforestry Diagnosis and Design (D & D).
8. Economic Aspects of Agroforestry in Nepal.

## Forest Protection

5 Questions

1. Protection against environmental agencies.
2. Protection against damage caused by human.
3. Protection against grazing.
4. Nursery pests and its control measure.
5. Control of important forest insect.
6. Protection against trees damage by diseases.

## Community Forestry

10 Questions

1. Emergence and evolution of community forestry in Nepal.
2. Forest users (primary/secondary/tertiary), user group, user group committee, user assembly.
3. RRA/PRA and its procedures, tools and techniques.
4. Process of user group formation, forest constitution and operational plan; components of forest constitution and operational plan.
5. Harvesting/silvicultural operation and forest products distribution mechanism in community forest.
6. Good Governance and Decision Making process in community forestry, Gender and Social Inclusion in forest management practices.
7. Master plan for forestry sector Nepal 1988 (focus related to community forestry) and national community forestry workshops.
8. Communication and Capital formation through community forestry (natural, physical, human, social and financial).

## Forest Mensuration, Biometrics and Research

10 Questions

1. Forest statistics of Nepal.
2. Principles and methods of forest sampling – sample size, sampling intensity, sampling unit, simple random sampling, stratified random sampling, systematic sampling.
3. Designs used in Forestry experiments – Randomized block design, Split Plot design and Factorial design.
4. Statistical methods used in Forestry research – statistical parameters, f-test, t-test, analysis of variance, covariance analysis, correlation and regression.
5. Principles of forest biometrics, tree and forest growth models volume & yield Tables.
6. Principles, tools and techniques used in Remote Sensing, GIS and Photo interpretation.
7. Use of surveying and mapping instruments and preparation of forest maps.
8. Theory and practice of National Forest Inventory and role of ground verification.

## Soil Conservation

10 Questions

1. Soil types, formation and profile, physical and chemical properties and classification.
2. Land use and land capability classification.
3. Concept of hydrological cycle.
4. Types of soil erosions and their preventive and control measures.
5. Soil and water conservation structures - breast walls, retention wall, check dams, ponds, slope stabilization, methods of top soil cover, roadside stabilization.
6. Bioengineering, Soil fertility and indigenous soil fertility management practices in Nepal.
7. Concepts and basics of soil loss assessment and soil analysis.

## **Watershed Management**

5 Questions

1. Concept and approaches to sustainable watershed management.
2. Identification, planning and management of micro and macro watershed areas.
3. Interrelationship between forestry, agriculture, livestock and development infrastructure activities with respect to sustainable watershed management.
4. Early warning and prevention from natural hazards, measuring water discharge, water quality analysis and checking water runoff and erosions.
5. Concept and approaches to water harvesting and conservation farming.
6. Agroforestry systems and practices in Nepal. Criteria for selection of fuelwood, fodder, bamboo and other NTFP species and their production techniques for rural income and employment for poverty reduction.
7. Participatory approaches to soil and watershed management.

## **Wildlife and Planning and Management of National Parks and Protected Areas**

10 Questions

1. Status and classification of Protected Areas in Nepal (National Park, Conservation Area, Hunting reserves, Wildlife Reserve, Buffer Zone etc.).
2. Preparation and implementation of management plans for different types of Protected Areas. Principles and practice of eco-tourism, visitors' management, conflict resolution and monitoring of Protected Areas management and wildlife census.
3. Population ecology (population density, carrying capacity, population census, predation, reintroduction and relocation, etc.).
4. Approaches to biodiversity conservation, Ecosystem management approach, in-situ and ex-situ conservation, and conservation of biodiversity at ecosystem, species and genetic level.
5. Geographical distribution, habitat and behavior of common and endangered Nepalese mammals, birds, reptiles, insects and fish.
6. Types of wildlife habitats, habitat analysis and management techniques.
7. IUCN red list, Biodiversity strategy for PAs, Environmental Impact Assessment (including IEE).
8. Strategy and Action Plans for the management of rare and endangered wildlife species of Nepal (including Tiger, Rhino, Elephant, Snow leopard etc.).

## **Forest Utilization**

5 Questions

1. Non-timber forest products of economic importance in Nepal.
2. Forest based industries and their functioning in Nepal.
3. Conservation, collection, processing and marketing of high value NTFPs in Nepal.
4. Role and function of Herbs Production and Processing Company Limited (HPPCL), Forest Products Development Board, The Timber Corporation of Nepal (TCN) and District Forest Products Supply Committees.
5. Scope and potential role of different forest products in poverty reduction.