

लोक सेवा आयोग
नेपाल वन सेवा, फरेष्ट रिसर्च समूह, राजपत्रांकित द्वितीय श्रेणीको (खुला र आन्तरिक प्रतियोगिता) लिखित परीक्षाको
पाठ्यक्रम
द्वितीय पत्र:- समूह सम्बन्धी

1. Forestry Research in General

- 1.1 Concepts, Principles and Practices of research methods applicable to forestry and natural resources
- 1.2 Types of research (Basic and applied, on station/on farm and laboratory, biological and social, participatory, out-reach and action research)
- 1.3 Preparation of research / survey protocols
- 1.4 Field implementation of forestry research and survey activities
- 1.5 Dissemination of research results/survey information using various means such as training, extension, publication and result demonstration
- 1.6 Current issues in forestry research in Nepal and around the SAARC countries

2. Statistical methods and Experimental designs

- 2.1 Theories and principles of experimental design
- 2.2 Application of experimental design in forestry research
 - 2.2.1 Structure and function of blocking, randomization and replications
 - 2.2.2 Treatment structure, contrast and function, main effect and interactions, experimental unit, plot shape, size, and field layout
- 2.3 Designs used in forestry experimentation
 - Randomized block design
 - Split plot design
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 - Latin square design
 - Factorial experiments
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- 2.4 Statistical methods used in forestry research
 - 2.4.1 Concept and use of statistical parameters (Variance, covariance, coefficient of variation, standard error, correlation coefficient, normality and transformation, confidence interval)
 - 2.4.2 Statistical tests (t-test, f-test, Scheffe's test, chi-square, Bartlett' test)
 - 2.4.3 Analysis of variance and covariance analysis
 - 2.4.4 Linear and multiple regression and correlation
 - 2.4.5 Linear and non-linear models
 - 2.4.6 Estimation and analysis of proportion
 - 2.4.7 Models and distribution of frequency data
 - 2.4.8 Repeated measurements and bivariate analysis
- 2.5 Social and Environmental research methods in forestry
 - 2.5.1 Socio-economic surveys methods (PRA, RRA, D& D, action research, participant observation)
 - 2.5.2 Environmental Impact Assessment of Forestry Programmes (Scoping and TOR, Impact Assessment, Environmental Monitoring and Aucting)
- 2.6 Statistical analysis using various computer software (e.g, SPSS, EXCEL, Genstat, Minitab, Instat, Mstat, Statgraphics)
- 2.7 Interpretation of research results and scientific paper writing

- 3. Forestry Research Survey, Inventory and Mapping**
 - 3.1 Principles and practices of Forest Resource Survey, Inventory and Mapping
 - 3.2 Application of different tools and techniques in forest Survey, Inventory and Mapping and photogrammetry, cartography and digital mapping
 - 3.3 Design and use of various Sampling Procedures
 - Simple random sampling
 - Systematic sampling
 - Cluster sampling
 - Sampling unequal size units
 - Stratified random sampling
 - Double sampling
 - Two-stage sampling
 - Size and shape of sample unit
 - 3.4 Forest mensuration and biometrics
 - Measuring forest and trees
 - Preparation of growth, volume, yield and biomass tables
 - 3.5 Methods of socio-economic and marketing surveys applicable in forestry
 - 3.6 Inventory of NTFP and on farm tree resources census of wildlife population
- 4. Remote Sensing, GIS and Space Technology**
 - 4.1 Concepts, Principles and practices of Remote Sensing, GIS and Space Technology
 - 4.2 Application of modern tools and techniques for Remote Sensing, GIS and Space Technology
 - 4.3 Visual Interpretation of RS Imageries
 - 4.4 Vegetation Classification from Satellite Imagery
 - 4.5 Detection and Monitoring of land use/land cover change using RS and GIS
- 5. Silviculture and Forest Management**
 - 5.1 Principles and practices of Silviculture and Management of natural and plantation forest
 - 5.2 Designing, Implementing and reporting of research activities related to natural forest silviculture and management
 - 5.2.1 Silvicultural systems, natural regeneration, forest growth and yield, thinning, pruning, timber stand improvement
 - 5.2.2 Reduced impact logging, processing, marketing and industrial utilisation
 - 5.2.3 Tree physiology, wood anatomy and properties, seasoning techniques
 - 5.3 Generation, verification and dissemination of technologies related to plantation silviculture and management
 - 5.3.1 Forest seed biology and seed testing establishment of seed stands/orchards
 - 5.3.2 Propagation techniques of forest trees (via seed, vegetative methods and micro-propagation)
 - 5.3.3 Techniques of plantation establishment in different sites
 - 5.3.4 Progeny and provenance testing
 - 5.4 Research methods related to tree and forest health and its management
 - 5.4.1 Forest ecology
 - 5.4.2 Forest fire management
 - 5.4.3 Principles of forest disease/insect management
 - 5.4.4 Integrated insect/pest management strategies
 - 5.4.5 Insect/pest of major forest types of Nepal

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- 5.5 Forest genetics and Tree Improvement
 - 5.5.1 Concepts, Principles and Practices of Forest Genetics and Tree Improvement and its application in forestry
 - 5.5.2 Production, management and supply of forest seeds via establishment of seed stands/orchards and through international seed networks
 - 5.5.3 Assessment of genetic traits (qualitative and quantitative gains)
 - 5.5.4 Designing implementation and reporting genetic experiments (tree breeding, hybridization, molecular technology)
- 6. Non-timber forest products (NTFPs)**
 - 6.1 Concepts, Principles and Practices of Agroforestry
 - 6.2 Major Agroforestry systems of Nepal and the SAARC countries
 - 6.3 Major Non Timber Forest products of Socio-economic Importance in Nepal (bamboo and rattan, medicinal and aromatic plants, wild fruits, wild animals and their products, resin, taxol)
 - 6.4 Developing and disseminating appropriate technologies for cultivation management, value added processing and marketing of agroforestry trees/MPTS and high value NTFPs
 - 6.5 Role of research in Indigenous knowledge, Agroforestry and NTFPs in sustainable agriculture/forest
 - 6.6 Appropriate technologies available for the domestication, commercialisation and marketing of major agroforestry trees and high value NTFPs in Nepal
 - 6.7 Application of appropriate research methods in, wild flora and fauna
- 7. Soil plant and water relation**
 - 7.1 Forest soils, properties and classification systems
 - 7.2 Soil-plant-water relationship
 - 7.3 Designing and implementing experiments on
 - 7.3.1 Tree-crop interaction
 - 7.3.2 Soil and plant nutrients, site quality, soil fertility and fertilization
 - 7.3.3 Bioengineering
 - 7.3.4 Soil loss monitoring
 - 7.4 Application of modern tools and techniques for analyzing soil and plant nutrients and running soil and plant analytical facilities
 - 7.5 Appropriate Soil Conservation and Watershed Management techniques and practices applicable for Nepal
- 8. Forest Biodiversity, Socio-economic and Environmental Research**
 - 8.1 Concepts, principles and practices of Forest Biodiversity conservation, management and utilization in Nepal
 - 8.2 Various approaches adopted in the management of National parks and conservation areas, Buffer Zones, Wild Flora and Fauna in Nepal
 - 8.3. Ecotourism
 - 8.4. Forest Certification
 - 8.5. Social survey methods related to forestry (PRA, RRA, D&D, Action Research, Participant Observation etc)
 - 8.6. Socio-economic and Environmental Impact Assessment of Forestry programmes
 - 8.6.1 Scoping and TOR
 - 8.6.2 Impact Assessment
 - 8.6.3 Environmental Monitoring
 - 8.6.4 Environmental Auditing