B.Sc. II Year

PAPER I (FOREST MENSURATION AND BIOSTATISTICS)

UNIT 1 MENSURATION

1. Definition and conventions units of measurements and standards of accuracy implied in their expression.
2. Measurement of diameter and girth: object of measurement, concept and place of breast height measurement of diameter/ girth under different conditions, accuracy of measurement, instrument used.
3. Measurement of height of trees: Principles of height measurements, instruments used for measurement of height, height measurement under different field condition.
4. Form of Tree: Form factor, form quotient, different tables used for estimation of form and form correction and increment percent.
5. Measurement of volume of tree: definition, object, and measurement of volume of felled and standing trees; preparation, classification and use of volume tables.
6. Biomass measurement: Methods of biomass measurements, factors affecting weight of wood and bark.
7. Age and growth of trees: object and methods of determination of age of standing and felled trees. Methods of determining growth of trees- stem, stump analysis and increment boring.
8. Crop measurement: Measurement of crop height, girth, diameter, age and basal area.
9. Yield tables, their categories and uses with special reference to important species.
10. Definition, object and classification of increment; increment percent of diameter and volume.
11. Remote sensing- general considerations, scope advantages and uses.

UNIT II (BIOSTATISTICS)

1. Biostatistics –Definition, scope and importance in forestry,
2. Collection, classification and tabulation of statistical data- frequency distribution, diagrammatic and graphical representation of data.
3. Measures of central tendency- Mean, Mode and Median
4. Measures of dispersion- mean deviation, standard deviation and standard error.
5. Simple correlation and regression;

6. Elementary idea on probability- additive and multiplicative theories of binomial and normal distribution.
7. Test of significance- based on normal, t and X^2 test.
8. Sampling techniques – Simple, random, stratified and systematic sampling.

PAPER II (FOREST MANAGEMENT AND WILDLIFE)

UNIT I- FOREST MANAGEMENT

1. Definition and scope, management of private forest vis-a-vis public forests, objects of management, Sustained yield, increasing and progressive yield, and arguments for and against sustained yield principles.
2. Forest organization: Geographical and ecological classification, functional classification, legal classification, territorial classification, administrative classification.
3. Increment- C.A.I. and M.A.I. curves, increment percent, quality and price increment.
4. Distribution of age classes and age gradation in even and uneven aged forest.
5. Normal forest- basic factors of normality, kinds of abnormality in regular and irregular forest.
6. Growing stock: concept and determination by different methods.
7. Yield regulation- definition, principles, object, factors effecting yield regulation in regular and irregular forests.
8. Rotation- definition and concept of rotation in regular and irregular crops, types of rotation, length of rotation, choice of rotation and conversion period.

UNIT II- WILDLIFE

1. Definition, concept and history of wildlife management in India, rare, threatened and endangered species of India.

2. Sanctuaries, National Parks, Zoological parks and Biosphere reserves, Project tiger and wildlife legislation, various Government and private agencies involved in wildlife conservation and wildlife values.

PAPER III (SOCIAL FORESTRY AND AGRO-FORESTRY)

UNIT I - SOCIAL FORESTRY

1. Social Forestry- concept, scope, objectives, types of social forestry, practice, people participation, importance of exotic species and their nurseries, status of Social forestry projects in different states of India, factors effecting success of social forestry projects and urban forestry.

2. Plantations- Energy plantations, species suitable for road sides, canal banks, river bank sides, coastal areas, arid zones, marshy lands, waterlogged areas, sand dunes and mountainous regions, species suitable for fodder and fuelwood in Uttarakhand and their production level.

UNIT II - AGRO- FORESTRY

1. Definition, objectives, scope and constrains of agro forestry.
2. Choice and characteristics of species for Agro forestry.
3. Multipurpose trees (MPTs) in Agro forestry, crop interaction, Soil productivity aspect of Agro forestry and economic aspect of Agro forestry.
4. Agro forestry systems, socio-economic and ecological aspects of agro forestry.
5. Management of trees in agro forestry, diagnosis and design techniques.
6. Lopping practices, lopping cycle, fodder values of trees, hedge and alley cropping.
7. Research and extension needs in agro-forestry.
8. Joint Forest Management (JFM)-Principal, objectives, methodology, scope, benefits and role of NGOs.