

Semester I

Course I

1+1 =2

STRUCTURAL & SPOKEN ENGLISH

Unit I

ELEMENTS OF ENGLISH GRAMMER: A REVISION

1. Study and use of Articles; Pronouns and Prepositions
2. Tenses in English.

SENTENCE STRUCTURE

1. Sentence formation
2. Some Common varieties of sentence structure (including errors).

Unit II

READING COMPREHENSION

Six specified lessons from the following text book:

Name Glimpses of English Prose.

Author Dr. O.P.Dixit

Publisher Sahitya Niketan, Kanpur

Unit III

WRITTEN COMMUNICATION

1. Letter and application writing.
2. Report writing.

Unit IV

VOCABULARY

1. Synonyms and antonyms.
2. One word substitution
3. Affixes, prefixes and suffixes.

PRACTICALS

1. Speech mechanism - speech event, production of speech, speech organs.
2. Phonetic sounds and symbols - pure vowels, diphthongs and constants (voiceless voiced, accented/unaccented, aspirated/inspired).
3. Accent in connected speech-rhythm, weak forms, intonation etc. -
4. Listening comprehension
- 5 Reading comprehension.

BOOKS (Recommended)

1. English sentence structure. Author-Juppe and Milne, Publisher - Hienemann.
2. Living English Structure. Author - W.Stannard Allen. Publisher - Longman.
3. An English Reader's Dictionary, compiled by A.S.Hornby and E.C.Parnwell. Publisher - Oxford University Press and the English Language book Society.
4. High School English Grammar and Composition. Author-Wren & Martin.
5. A Practical English Grammar. Author - Thompson and Martinet. Publisher - English Language Book Society.
6. Better English Pronunciation. Author - J.D.O. Connor, Publisher - Cambridge.
7. English Conversation practice. Author - Dr. H. Spencer, Publisher - Oxford University Press.
8. Spoken English - A Self Learning Guide to Conversation Practice. Authors - V. Sasikumar and P.V. Dhamija, Publisher Tata McGraw Hill Publishing Co. Ltd., New Delhi.

Semester I

Course II

2+1=3

PRINCIPLES OF AGRONOMY

Unit I

Definition and scope of Agronomy. Classification of Crops on different basis.

Unit II

General principles of Crop production Climate, soil, field preparation, seed and sowing post sowing-tillage, water management, nutrition, plant protection measures, harvesting, threshing and storage.

Unit III

Crop sequences and system with emphasis on mixed cropping and inter- cropping.

Unit IV

Nutritional management of crops including application of manures, fertilizers and bio fertilizers. Concept of integrated nutrient supply system.

Practical

1. Study of weather and weather forecasting.
2. Identification of crops, manures and fertilizers.
3. Framing of crop rotations and preparation of cropping schemes for varying agro-climatic conditions.
4. Preparation of seed bed based on important inter-cropping systems.
5. Calculation of fertilizer requirement, fertilizer mixtures and unit values.
6. Methods of fertilizer application.

Course III

Semester I

2+1=3

FUNDAMENTALS OF SOIL SCIENCE

Unit I

Definition of Soil, components of Soil and their role in agriculture. Soil forming rocks and minerals, Development of Soil profile, Soil formation, factors affecting soil formation, soil forming processes. Soil reactions and its measurements and significance. Chemistry of clay minerals with special reference to Kaolinite, Montmorillonite and Illite. Physical properties of soil and their significance. Chemical properties of soil, cation and anion exchange phenomenon and their importance in agriculture. Soil organic matter, humus formation and its importance in soil fertility, management and maintenance of organic matter in soil.

Unit II

Soil of UP. - Classification, distribution, characteristics. Elementary idea of soils of India occurrence, characteristics, physico-chemical properties of chernozems, podzol and laterite soil. Basic idea of comprehensive system (7th approximation) of soil classification.

Unit III

Elementary idea of soil survey and Land capability classification. Occurrence, distribution and functions of Soil Micro-organism. Biological Nitrogen Fixation (Symbiotic and Non symbiotic), Nitrification, Microbial decomposition of organic Matter in Soil. Role and use of Bio-fertilizers in Crop Production.

Unit IV

Classification and use of Insecticide, Fungicides and herbicides

Practical

1. Preparation of HCl extract of Soil.
2. Determination of Ca and P, Mg, Na and K.
3. Determination of soil O.C and O.M.
4. Estimation of Cl, CO₃, HCO₃ in soil extract
5. Determination of total nitrogen in soil
6. Determination of buld density and W.H.C.
- 7 Determination of moisture in percent.
8. Determination of Cl in soil extrat.

Course IV

Semester I

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ELEMENTS OF GENETICS

Unit I

Definition, significance and historical development in genetics. Mendel's Law's of heredity. Gene inter-action. Chromosomal theory of inheritance, meiosis and mitosis.

Unit II

Linkage and crossing over-types, mechanism and significance. Nucleic acid as genetic material - structure, replication, genetic code and translation.

Unit III

Mutation - spontaneous and induced. Chromosomal changes - molecular structure and numerical.

Unit IV

Multiple factor inheritance and multiple alleles, blood groups in men and body coat colour in rabbits. Sex chromosomes and its determination in man and drosophila, sex linked characters. Cytoplasmic inheritance - plasma and nuclear.

Practical

1. Preparation of temporary cytological slides (mitosis and meiosis).
2. Genetical problems on mono and dihybrid ratios with their modification.
3. Chi-square test and goodness of Mendelian ratios.
4. Practical record
5. Viva-voce

Course V

Semester I

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ELEMENTARY STATISTICS AND APPLIED MATHEMATICS

STATISTICS

Unit I

Definition, Aims, characteristic and Limitations of Statistics, Classification and Tabulation of data. Definition, advantages and disadvantages of Arithmetic Mean, Median, Mode, Geometric Mean, Harmonic Mean and Weighted Mean as measures of central tendency; and Range, Quartile Deviation, Mean Deviation, Variance, Standard Deviation and Coefficient of Variation as measures of dispersion

Unit II

Definition of probability, Additive and Multiplicative Laws of probability and simple problems based on them. Definition, merits and demerits of Sampling and Random Sampling. Concept of Standard Error, Basic concepts used in Tests of significance like Null Hypothesis Degrees of Freedom and Level of Significance. Definition and uses of z and t-tests in testing significance of difference between two means; F-test in testing equality of two variances and χ^2 test as a test of independence of attributes in 2x2 contingency table only.

Unit III

Basic principles of Experimental Design. Description and Analysis of Completely Randomized Design (CRD), Randomised Block Design (R.B.D.) and Latin Square Design (L.S.D.)

Unit IV

Binomial Theorem for positive integral index only. Uses of Natural and Common Logarithms. Exponential Series. Limits and Differentiation (Without differentiation by first principles). Differentiation of algebraic, trigonometrical, logarithmic and exponential functions only, Logarithmic differentiation. Differentiation of products, quotients, function of functions, Implicit and Explicit functions.

Practical

Based on

1. Measures of Central Tendency
2. Measures of Dispersion
3. Tests of Significance
4. Analysis of CRD, RBD and LSD

Course VI

Semester I

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AGRICULTURAL METEOROLOGY

Unit I

Different meteorological variables related to agriculture. Rainfall - Hydrologic Cycle and its components. Types and forms of precipitation. Storms, occurrence, variation and measurement of rainfall. Rain gauges.

Unit II

Computation and analyses of data, Plotting of mass curve and rainfall, intensity curve. Run-off- Definition, types, factors affecting, estimation and measurement of Run-off.

Unit III

Atmosphere - Definition and structure, Climate and weather, atmospheric pressure, factors affecting, measurement.

Unit IV

Elementary idea of isolation, Temperature, kinds and measuring instruments. Evaporation, factors affecting, measurement. Humidity, definition, windvane, Anemo-meter. Indian Agro Climatic Zones. Elementary idea of weather forecasting.

Practical

1. Computation of average rainfall
2. Mass Curve.
3. Rotting Barograph for rainfall data.
4. Rainfall intensity curve.
5. Measurement of Rainfall by Rain gauge.
6. Measurement of Atmospheric Pressure.
7. Plotting line graphs for illustrating climatic factor such as temperature.
8. Measurement of Relative Humidity.
9. Study of wind vane and Anemometer.
10. Measurement of Evaporation by USDA evaporation pan.

Course VII

Semester I

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RURAL SOCIOLOGY AND EDUCATIONAL PSYCHOLOGY

Unit I

Definition and scope of Rural sociology. Basic concept of society, community and groups. Characteristics and Differences of rural and urban communities.

Unit II

Basic rural institutions and their role in Agriculture development. Definition and types of rural leadership and their role.

Unit III

Definition, nature and importance of psychology in the development of human behavior. Meaning of habit and habit development.

Unit IV.

Basic Psychological concepts; motivation, Social Interaction, Attitudes, Emotions, Prejudices and Social Perception. Personality - definition and development.

Practical

1. Socio-economic survey of village communities.
2. Developing schedules and questionnaires.
3. Practical knowledge about the working of basic rural institutions.
4. Identification of important value systems in the rural setting as a means of social control.
5. Identification of rural personality traits that affect the development of personality in rural situation.

Course VIII

Semester I

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FUNDAMENTALS OF HORTICULTURE

Unit I

Introductory knowledge of main branches of horticulture and their importance: Botanical classification of fruits, climatic fruit zones of Uttar Pradesh and fruits grown therein.

Unit II

Establishment of orchards; Selection of site, systems of planting; Orchard soil management; Systems of irrigation; Principles of pruning and systems of training of fruit plants.

Unit III

Unfruitfulness, its causes and measures to overcome it; Fruit drop, its causes and measures to control it.

Unit IV

Rejuvenation of orchards, Brief studies of polyembryony, parthenocarpy and incompatibility.

Practical

Identification of garden tools and plants:

Preparation of orchard Layouts for different climatic zone of UP,

Practice of propagation of major fruit plants;

Preparation and seed beds and rising of seedlings;

Practice of lifting and packing of nursery plants;

Visit to nurseries, gardens and research stations.

Semester I

Course IX

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PHYSICAL EDUCATION