

# **VBS Purvanchal University**

## **Jaunpur**

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Syllabus B.Sc. Ag. Part-IV

**Paper –I**

**Environmental Studies**

M.M.: 50

**Theory**

Section ‘A’

Agriculture Chemistry & Soil Science:

Environmental Studies: Meaning and scope. Environmental segment; atmosphere, lithosphere, hydrosphere and biosphere. Soil environment and its pollution. Soil Ecology and environmental Quality. Soil reaction: acidity and alkalinity. Diagnosis and improvement of problematic soils. Behavior of pesticides in soil. Gei-organic contaminants of soil, use of sewage, sludge and industrial wastes for crop production. Water environment and its pollution. Biochemical effect of toxic chemicals with particular reference to war, soil, plants and animals.

Section ‘B’

Agriculture Botany:

Aquatic ecosystem: Marine ecosystem, ocean & marine environment, zonations in marine ecosystem, marine life, pollution and management of marine ecosystem. Fresh water ecosystem, Specific organisms as Indicators of pollution of an aquatic environment. Air environment. Air pollution; green house effect, Nature, extent and variation of plant response to air pollutants. Conservation of Flora & Fauna. Managing Biomass, energy flow and cycling of essential elements.

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### **Paper -II**

#### **Problems of Indian Agriculture Cooperation and Marketing**

M.M.: 50

#### **Theory**

- I. Problems of Indian Agriculture Cooperation and Marketing:
  1. Importance of agriculture in national economy. Agricultural regions. Agricultural production and productivity trend. Causes of low productivity.
  2. Land problems of Land holdings. Land tenures and land reform measures with special reference to U.P.
  3. Labour-problems of Agricultural labour, Unemployment and under employment, agricultural wages & methods of wage payment, Government measures in relation to Agricultural labour.
  4. Agricultural Finance-Agricultural credit requirement, types of agricultural credit and credit sources, problems of institutional credit.
  5. Organization-Economics of small and large scale farming, systems and types of farming.
- II. Agricultural Cooperation:
  1. Principles of cooperation.
  2. Credit Cooperatives-Primary, Central, Apex, Land development Bank.
  3. Agricultural Marketing cooperatives.
  4. Processing cooperatives.
  5. Service Cooperatives.
- III. Agricultural Marketing:
  1. Marketing defined, types of markets.
  2. Marketed and marketable surplus.
  3. Marketing services and functions-assembling, transportation grading and standardization, storage, financing, risk bearing, demand creation and price discovery.
  4. Marketing channels and organization, intermediary & other functionaries.
  5. Marketing margin and costs.
  6. Market efficiency
  7. Regulation of markets.
  8. Elementary study of agricultural prices-fluctuations and Measures taken to stabilise agricultural prices.
  9. Problems of Agricultural marketing.
  10. Measures taken by the Govt. for the improvement of marketing.

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### **Paper –III**

#### **Rural Sociology and Rural Development**

M.M.: 50

##### **Theory**

1. **Rural Sociology:** Meaning, definition and importance, Relation of Rural Sociology to Extension Education. Elements of Rural Society, Community, Social structure, Social values & norms. Community organization. Meaning, Objectives, Principles, Steps in community action, rural institutions, rural leadership concept, importance, type and their role, social diagnosis and ascertainment of felt needs leading to social change.
2. **Communication:** Meaning, definition and importance of communication, communication process and elements of communication, Factors affecting communication and use of effective communicative channel for agricultural production.
3. Meaning, definition and concept of diffusion and adoption process. Stages of adoption of agricultural innovations.

### **Paper –IV**

#### **Principles of Plant Breeding and Practice**

M.M.: 50

##### **Theory**

1. Morphology of reproductive organs: Development of anthers and ovules; pollination; Self incompatibility and male sterility; Fertilization and embryo Development; Apomixis; Embryo and Tissue culture.
2. Variation: King and causes: Importance of variation in plant breeding; Measurement of Variation.
3. Plant Introduction and acclimatization; centers of origin; plant quarantine.
4. Selection: Type and methods of selections, Achievements through selection.
5. Hybridization; types and techniques of Hybridization. Hetaerists and inbreeding depression; hybrid, synthetic and composite varieties; Back cross method of Plant Breeding.

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6. Breeding for disease resistance; genetics of pathogenicity and resistance, Methods of breeding for disease resistance.
7. Special methods of plant breeding, Mutation and Polyploidization in plant breeding.
8. Review of plant breeding work done on important crops in India.
9. Definition, Classes qualities and importance of improved seed; Genetic purity and its maintenance; seed testing.
10. Methods of seed production of important crops.
11. Seed certification; seed certificate.
12. Seed Act.

Elective Papers  
Elective-I Crop Science Papers

### **Paper –V**

#### **Fruit Technology**

M.M.: 50

#### **Theory**

Vegetables and fruits-Scope and importance of Hortico-Industry in India. General principles of Vegetable and Fruit preservation; Raw material for processing, Methods of preservation; and processing e.g. canning, dehydration, preserves, pickles, Cordial, Squashes, Jam, Jellies, Equipment and techniques of freezing of fruits and vegetables, Juice and puries, Methods of storage of fresh and preserved products; quality control during processing. Fruit Product order.

### **Paper –VI**

#### **Plant Protection (Plant Pathology and Entomology)**

M.M.: 50

#### **Section ‘A’ (Plant Pathology)**

#### **Theory**

1. General Principles of plant protection and importance in agriculture.
2. Principles of plant infection, Physiologic specialization and methods of isolation and study of plant pathogen and Epidemiology.
3. Principles of plant disease control: Quarantine, cultural method, Biological control, chemical control, soil sterilization, seed treatments. Spraying and dusting: cooper, sulphur, mercurial and organic fungicides and their mode of action. Knowledge of systemic fungicides and their action, antibiotics, virus inhibitors and nematicides.

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4. Plant disease resistance, principles of breeding for disease resistance. Factors responsible for resistance and break down of resistance. Important crop varieties known to be resistant to diseases.

### **Section 'B' (Entomology)**

1. History and importance of plant protection in India.
2. Set up of plant protection organization in U.P.
3. Principles of pest control viz. Physical and mechanical Cultural legal and biological and integrated Control.
4. Pest Management-Concept and Scope.
5. Pesticide and their classification, toxicity of pesticides and First Aid Treatment.
6. Insecticidal laws.
7. Plant Protection equipment. Their care and maintenance.
8. Recent trends of pest control viz Chemosterilants, growth-regulators. Antifeedants and radiation.
9. Damage, life history and pest management practices of rats, birds.
10. Formulation of pesticides.

### **Paper –VII**

#### **Production Economics (Field Crops, Livestock and Poultry)**

M.M.: 50

#### **Theory**

1. Production Economics: Its nature and scope. Terminology used in production Economics.
2. Factor-product relationship: Production function, Types of factor-product relationship. Rational & irrational stages of production. Function optimum input uses. Impact of Technological changes on production function.
3. Production & Cost: Concept of cost, cost function, average and marginal cost, three zones of cost function & profit maximization, Factor & product price changes and product decision.
4. Factor-Factor relationship: Factor-Factor relationship, iso-cost lines, least cost combination, iso-cline, expansion path, Ridge lines, choosing optimum level of out-put, rational and irrational zones of production, substitution curves, input price changes and least cost combination.
5. Product-Product relationship: Types of production possibilities, choosing the optimum Product combination, Optimum combination of many products.
6. Linear Programming: Linear programming defined concepts in solution in linear programming. Assumptions of Linear programming, Simple graphical solution. Utility of Linear programming.

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7. Production Function Analysis: Methodology of production function analysis. Different forms of production function, linear production function, Cob Douglas production function, quadratic production function, their characteristics and uses.

Elective Papers  
Elective-II Animal Science

### Paper –V

#### Food of Animal Origin

M.M.: 50

##### Theory

Classification of different foods of animal origin and their importance in human diet. I.S.I/P.F.A. Specifications of foods of animal origin. Composition, nutritive value, preparation/procession and preservation of foods of animal origin. Composition, nutritive value, preparation.

- (A) Milk and Milk Products: Cow Buffalo, Goad and sheep milk humanized milk, tonned and double tonned milk; flavored milk recombined and reconstituted milk.  
Milk products such as Dahi, Yoghurt, Chhena, Paneer, Cottage cheese, Chhedar and processed cheese, Ice-cream, butter and ghee milk powder, baby food, condensed and evaporated milk, Khoa and Rubbari.
- (B) Egg and egg products: Whole egg, Whole egg power and egg-Yolk powder.
- (C) Different kinds of meat such as muttons, chicken and pork, Packaging, Storage and transportation of above food products.

### Paper –VI

#### Poultry Production

M.M.: 50

##### Theory

Development of Poultry industry in India and national poultry improvement plans, Different breeds of Chickens for egg and meat production, Crosses and their relative importance.

**Anatomy and Physiology:** External features of the Chickens, digestive and reproductive systems, formation and structure of the eggs, Nutritive value of egg, abnormalities in eggs.

**Breeding:** Principles of breeding, Systems of breeding, breeding for egg production and development of strains of broilers, selection and culling, breeding practices.

**Incubation:** selection, Handling and care of hatching eggs, natural and artificial incubation, type of incubators, embryo mortality and its causes. Factors affecting successful incubation, testing of eggs during incubation, stages of embryo development during incubation, sexing, vaccination, packaging and transportation of day-old Chicks.

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**Brooding of Chicks:** Brooding requirements, natural and artificial brooding, Care and management during brooding, types of brooders used and their relative importance.

**Feeding Principles and Practices:** Requirement of nutrients for different age groups of Chickens and their sources in the ration composition, formulation and preparation of poultry ration for different categories of chickens. Various feeding practices used. Feed additives and supplements.

**Housing, Equipments and Management:** Housing system, requirement of house for poultry, space requirement for different categories of birds, Equipments required in a poultry house, lighting arrangement for poultry, sanitation of poultry house, Vaccination, common poultry diseases, their control, prevention and treatment such as New Castle, Chicken pox, Coccidiosis, markers and C.R.D. External and internal common parasites of poultry.

### Paper –VII

#### Pisciculture Apiculture, Sericulture and parasitology

M.M.: 50

##### Theory

Pisciculture: Definition of fish, General character of fishes. Place of fish in Animal kingdom. Study of class Telcostomi (Orteichthyses) with special reference to the orders of economic importance. Culturable fishes including exotic carps. Fish pond, Pond culture. Fish farm implements. Induced breeding in carp fishes. External morphology of fishes. Habit, habitats, food and biology of import edible fisher. Fishes of U. P. enemies and diseases of fishes. Fisheries & Agriculture. Economic importance of fish and fish as food.

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**Apiculture:** Kinds of honey bee found in India. Study of their castes, colony and life-history. Importance of honey and wax. History of Apiculture in India. Modern methods of bee keeping. Bee hive, tools and apparatus, requirements of an apiary and problems. Swarming and migration or absconding. Taxonomy of honey bee Enemies and diseases of honey bee.

**Sericulture:** History and scope of sericulture of India. Kinds of silkworm found in India. Taxonomy of silkworm. Study of external morphology of silkworm with special reference to Bomby X mori. Life history & seasonal history of silk worm. Modern method & sericulture, needs and problems. Enemies and diseases of silkworm.

**Parasitology:** Study of Parasites of fishes, bees & silkworm.