

## **SYLLABUS FOR A.P.A.S.(AGRICULTURE DEVELOPMENT OFFICER)EXAMINATION**

1.	GENERAL ENGLISH	-	100 MARKS
2.	GENERAL KNOWLEDGE	-	100 MARKS
3.	AGRICULTURE SCIENCE (P-I)	-	100 MARKS
4.	AGRICULTURE SCIENCE (P-II)	-	100 MARKS
5.	VIVA-VOCE	-	50 MARKS

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### **PART-I (PAPER-I)**

#### **1. AGRONOMY**

Agro climatic zones of India and Arunachal Pradesh Factors affecting distribution of crops. Crop classification tillage and its objective different types of tillage operation and implements. Importance of cultural practices in crop production, crop variety definition, seed selection and method of seedling definition seed selection and method of raising seedling. Definition and objective of crop rotation intensity of cropping multiple cropping, inter cropping, rain fed cropping, mixed cropping, cropping system and farming system. Details of rice crop, production technology of oils seeds, other cereals, pulses, fiber crop, cash crop, tuber crop with special emphasis on potato, sugarcane, ginger, turmeric, onion, soya been, millet, sunflower, sesomum, mustard, black gram, green gram.

Weed and their classification harmful and beneficial effect of weed. Introductory meteorology, weather and climatic, green house effect deferent meteorological instrument and measurement.

#### **2. HORTICULTURE**

Definition of Horticulture, its scope, importance, classification of horticulture plants. Fundamental Principles of Plant propagation, Lay out of orchard, system of planting and planting crops. Management of orchard soil, Irrigation of Horticulture crops and drainage, practices of deferent Horticulture operation. Planning and management of nurseries and orchards scope and importance of fruit growing production of tropical, sub-tropical, and temperate foods with special reference to their classification, use verities soil and climate requirement cultural practice and production problems.

Classification of vegetables, production of important vegetables crops grow in Arunachal Pradesh. Tuber crops, their origin, distribution, cultivation, of Tapioca, and sweet potato, colocasia.

Elementary principles of processing and preservation, scope of landscaping and floriculture in Arunachal Pradesh.

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### **3. PLANT PHYSIOLOGY**

Absorption of water and its movement inside plant. Factors affecting solute absorption and transpiration, evapotranspiration, mineral nutrition, enzymes and enzymic activity in different physiological process, carbon assimilation, respiration and photorespiration, nitrogen and fat metabolism, growth hormone and their importance in Agriculture/Horticulture photoperiodism and vernalisation and their importance in Agriculture.

### **4. GENETICS AND PLANT BREEDING**

Cell component, concept of cytoplasmic inheritance mutation, evolution, elementary concept of gene, gene action, DNA, RNA. Principle of inheritance, interaction of gene and modification of F<sub>2</sub> ratios, linkage and crossing over.

Plant breeding as modern science, classification of crops according to breeding behavior. Application of breeding method. Application of principle of plant breeding to the improvement of major crops like rice, wheat, maize, vegetable, pulses oil seeds.

### **5. SOIL SCIENCE**

Composition of soil, soil texture, soil structure, soil water. Soil colloids-mineral and organic, their natures and properties. Concept of soil PH. Development of acid/alkali soil.

Organic matter-humus, its formation nature and properties, CN ratio in soil and its significance. Important biological process in soil, amination, Amminification, Nitrification, dontrification and nitrogen fixation.

Concept of soil productivity and fertility Essential elements for plant, their forms availability and function. Deficiency symptom of nutrients in plant. Fixation and release of nutrient in soil, classification of nutrient. Factors affecting loss of plant nutrient.

Nitrogen fixation, symbiotic and non sym-biotic. Biofertilizers and their use. Chemical fertilizers, organic manures- their composition, classification, method of application. Different types of soil micro-organism Decomposition of organic matter in soil. Concept of soil profile, details study of soil profile. Land capability classification, soil survey, definitions, purpose and types.

## **PART-II (PAPER-II)**

### **1. PLANT PATHOLOGY**

Concept of disease in plant, importance of plant disease. Classification of plant disease. Various parasitic and non parasitic, causes of plant disease. Diagnosis of plant disease. Stages of disease development i.e. inoculation penetration, infection, invasion, growth and reproduction, affect of environment including adaphic factors in plant disease. Principles of disease management. Concept of integrated control measure.

Common disease of major field crops, vegetables, fruit crops, major pulses, oil seeds, commercial crops like sugarcane, potato, chillies etc. Their causal organism, disease symptom and control measures.

Importance of microbiology classification of micro organism different types of bacteria, brief classification of bacteria structure and classification of moulds and virus. Anti biotics and antibodies. Microbiology of soil and water air, and food. Antibiotics and antibodies.

Namatodes their pathogenesity, relationship with other microorganism.

### **2. ENTOMOLOGY AND NEMATOLOGY**

Different types of harmful and useful insects. Identification nature and extent of damaged caused by insect, life history, seasonal occurance management practices of major past of field crops fruits and vegetables. Productive insect with special reference to sericulture, apiculture and lacculture.

Stored grain pest and their control, rodent and their control measures.

Different method of pest control with special reference to IPM, classification of pesticides and their physical, chemical and biological properties, types of formulation, insecticide and precautionary measures. Different types of plant protection equipments their maintenance and use in the field.

### **3. EXTENSION EDUCATION**

Definition, meaning, objective of extension. Extension organization in India, importance of extension education in Agriculture and Rural Development. Teaching learning process. Classification and characteristics of extension reading methods, factors of influencing selection combination and use of extension teaching method. Role of AV aids in extension. Process and planning and evaluation.

### **4. AGRIL. ECONOMICS AND FARM MANAGEMENT**

Basic concept like wants goods, wealth, welfare value price, consumption, exchange factors of production, law of diminishing return. Farm of business organization. National income, per capita income.

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Basic concept of economic and Agril. Economics, Division of Agril. Economics, importance of the subject.

Farming system and types of Farm, Diversified farming and mixed farming. Intensity of cropping, Hazard in Agriculture and economic developments.

Importance of farm management its relationship with other science. Advantages of Farm records and accounts.

System of book keeping. Types of Farman record and act physical of financial. Principles involved in Farm Management decision. Management of Farm labour and wage record.

Planning labour, use for higher efficiency estimation of different kind of labour required in farm. Cost of production and return to Farm. Cost of fencing, irrigation, Farm layout. Agriculture marketing cooperation.

Problems of acquisition and organization of Farm.

## **5. AGRIL. ENGINEERING**

Scope of farm mechanization-benefits and limitation, sources of farm power, IC engines, elementary, knowledge about tractors, types and system soil tillage implements inter-culture, implements/equipments harvesting and threshing equipments. Soil-plant-water relationship. Drainage engineering, surveying and leveling. Introduction of post harvest and technology, grain storage, processing. Field structures and practices to control erosion by water. Different system of soil and water conservation.

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