

Maharana Pratap University of Agriculture and Technology, Udaipur

Syllabus for Programme Assistant/Technical Assistant (Agriculture) Examination 2022

Maximum Marks: 400

Time: 2 hrs

Agro-climatic zones of India and Rajasthan, Agro-ecology of crops. Modern concepts of tillage, management of crop residues, soil organic matter, bio fertilizers, green manuring, oil cakes, fertilizers. Consumption of straight and complex fertilizers, foliar application. Plant nutrients: function, occurrence, cycling in soils and their availability. INM concept and its components. Cropping and farming systems. Precision and organic farming. Irrigation in India and Rajasthan. Quality of water, requirement, management, drainage. Dryland agriculture in India and Rajasthan. Agronomical study of important crops of Kharif and Rabi of Rajasthan. Problem weeds of Rajasthan and their physical, cultural, biological and chemical control.

Soil erosion, conservation, essential nutrients, their functions, deficiency symptoms, soil fertility evaluation, nutrient recommendation. Manures and fertilizers. Management of saline, saline sodic, sodic and acid soils. Micro-organisms in soils and their role. Soil as a medium for plant growth, soil composition, formation, profile, survey and classification. Remote sensing. Physical chemical and biological properties of soil, soil biome.

Chemistry of carbohydrates, lipids, proteins, vitamins and plant (phyto) hormones. Chemistry of Nucleic acids and their functions. Outlines of metabolism of carbohydrate, lipid and protein. General account of enzymes, coenzymes and secondary metabolites. Brief out lines of plant tissue culture and plant biotechnology.

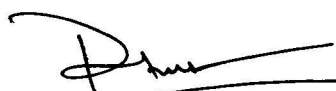
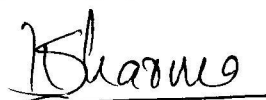
Animal kingdom- Classification and nomenclature. Economic importance of invertebrates and vertebrates. Management of insect - pest and mites in agriculture. Ecosystem and wild life preservation. Insect dominance. Insect reproduction and development; identification. Lac culture, sericulture and apiculture. Physical, mechanical, cultural, chemical, biological, legal and modern approaches to control insect - pests. Pest outbreak & their history.

Importance of microbes in agriculture. Micro - organisms and their classification, nutrition, growth and reproduction. Host-microbe relationship. Morphology, reproduction, nutrition and nomenclature of fungi. Classification of plant pathogenic fungi, bacteria & viruses. Symptomatology. Disease development and methods of plant disease control of important crops (cereals, pulses, oil seeds and cash crops) and IDM.

Introduction and brief history of plant parasitic nematodes, Important nematodes in different crops, their symptoms and control.

Variation-its causes and its importance in Plant Breeding. Pollination and fertilization. Cell structure and division. Mendel and his work. Gene interactions. Breeding methods of self, cross and vegetatively propagated crops. Heterosis. Seed production and certification of important crops. Application of genetic engineering and biotechnology in crop improvement. Popular and important varieties of crops, vegetables and fruits.

Importance of horticulture in Rajasthan, Pomology- Selection of site, preparation and layout of orchard, planting system. Principles of fruit production, propagation, cultivation of



important fruits of Rajasthan. Methods of preparation of juices, squashes, jams, jellies and marmalades, preserves, squashes and pickles, canning and dehydration of fruits and vegetables. Important varieties of Winter, Summer and Rainy season annuals. Vegetables- type of farming and classification. Raising of seedling in nursery. Cultivation of important vegetables.

Cell physiology, plant water relations, photosynthesis and photo- respiration. Respiration. Inorganic plant nutrition, physiology of flowering, Photoperiodism. Physiology of growth, PGR and regulation. Seed germination and dormancy.

Importance of Livestock and poultry in the state and national economy. Cattle management and housing of cattle, buffalo, sheep, goat, poultry and camel. Different breeds of livestock & poultry. Prevention and control of common livestock diseases. Classification of feeding stuff and computation of balanced ration. Important breeds of farm animals and poultry. Methods and systems of breeding. Principles and methods of selection. Infertility, sterility, their causes and prevention. Hatching, brooding and feeding management in poultry.

Importance of agri-business in Indian Economy. Meaning of utility, classical production functions and law of diminishing returns. Factors affecting demand and supply. Peculiarities of agriculture. Agricultural finance. Credit and credit institution. Regulated market. Marketing channels and price spread. Economic principles of farm management, financial tools of farm management, farm planning and budgeting. Risk and uncertainty in agriculture. Discounted and un-discounted methods of project analysis.

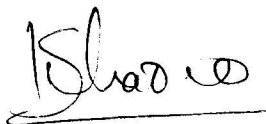
Extension education-definition, philosophy and principles. Rural sociology scope. Rural institutions- caste and family, rural leadership. Teaching -learning process. A.V. aids, teaching methods and their use in different situations. Programme planning and evaluation in extension education. Communication process and its elements. Diffusion of agriculture innovation. Extension and Developmental programmes and institutions- In India. Use of ICT in agriculture in India. Schemes for promotion of agriculture in Rajasthan and India.

Meaning and scope of statistics. Data summarization. Measures of central tendency and dispersion. Elementary idea of correlation and regression. Tests of significance. Field experimentation. Analysis of variance and its application in basic design of experiments.

Note: There will be 100 questions. Each question will carry 4 marks for correct answer and one mark will be deducted for incorrect answer.



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