



Vidya Bhawan Krishi Vigyan Kendra, Badgaon

(An Institution of Vidya Bhawan Society)

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Syllabus for written test of SMS (Horticulture)

Floriculture

General principles of Floriculture. Importance and scope of floriculture, garden designs and styles, lawns and their management; origin, classification and description of commercially important floricultural crops; factors affecting growth and flowering of ornamental plants; methods of propagation including tissue culture; growing of cut flower crops under protected conditions; pre-and post-harvest care of cut flowers; recent advances in production technology for rose, chrysanthemum, gladiolus, carnation, orchids, jasmines, tuberose, marigold and anthurium.

Role of male-sterility, self-incompatibility, polyploidy and mutations in the evolution of new varieties of flowers; heterosis breeding; male-sterility and its use in the production of F1 hybrids; breeding for disease resistance; use of anti-Transpirants in increasing shelf-life of plants and flowers; role of growth regulators in ornamental plants.

Major methods of preservation and processing of horticultural and ornamental crops.

Pomology

General principles of Pomology. Area and production of fruits, climatic and soil requirement, cultivation practices of major fruit crops like mango, citrus, banana, grape, papaya, guava, pineapple, loquat, phalsa, jackfruit, mangosteen, sapota, cashew nut, Ber, pomegranate, date palm, aonla and temperate fruits like apple, pear, peach, almond, plum, apricot and cherry.

Principles of pruning and training, weed control; modern methods of propagation including micro-propagation and use of growth regulators in fruit crops; water management; classification of fruit crops; use of biofertilizers; rootstocks and high density orcharding.

Improvement of plant types of important fruit crops; physiological manipulations for overcoming problems like biennial bearing, spongy tissue, malformation, necrosis and black tip in mango; delayed maturity and uneven ripening in grapes and granulation in citrus.

Vegetable Science

General principles of vegetable production. Area and production of vegetable crops in India, climatic and soil requirements, seed production techniques in vegetable crops and related problems. Origin, classification, cytogenetics, floral biology and breeding behaviour of different vegetables; methodology for the improvement of different self-and cross-pollinated vegetable crops including breeding for disease and insect resistance; Mendel's laws of inheritance.

Role of different nutrients, their deficiency symptoms and remedial measures; improved vegetable production technology.

Important statistical designs and methods of statistical analysis.

Syllabus for written test of SMS (Agriculture Extension)

Objectives, philosophy and principles of extension education; extension role of agricultural universities; comparative studies of extension education system in selected developed and developing countries; different models of organizing agricultural extension, particularly tools and methodology; agricultural information (knowledge) system; teaching and learning processes; principles of adult learning; audio-visual aids and their classification; modern communication and information technology; application of PERT/CPM principles of programme planning process; agricultural and rural development programmes in India.

Principles of extension management, different theories of management processes and functions of managerial organizational set-up for extension services in India including the T & V system; types of training programmes for extension personnel and farmers; model of modern training, modern technologies, experimental learning methods, entrepreneurial development process; factors affecting extension training.

Scope and importance of psychology in extension education, concept of human society; characteristics of rural people; socio-psychological basis of human behaviour, socio-psychological factors in transfer of technology; social structure; social interactions and processes; values and norms of rural social systems; rural institutions; role of leadership; process of diffusion and adoption; consequences of adoption of innovations; communication process and elements of communication; theories of communication, fundamentals of farm journalism; role of mass media; modern electronic media.

Process of scientific research; validity and reliability of measuring devices; methods of observation and data collection; techniques of tabulation; analysis of data and report writing; methods of statistical analysis; statistical designs.

Syllabus for written test of SMS (Home Science)

Human Nutrition, Health and Interventions: Balanced diet-Food groups, Food pyramid. Macro and micronutrients in human nutrition- Carbohydrates, proteins, lipids, vitamins, minerals and water-requirement. Inborn errors of metabolism. Functional foods and nutraceuticals. Diet & nutritional therapy in common disorders. Food allergies and intolerances. Major Public Health and Nutritional problems in India-Causes, magnitude and distribution. Assessment of Community Nutritional status by Standard methods. National Nutrition Policy, National programmes to combat malnutrition.

Food Science and Processing Technologies: Need & Scope of Food Science, Methods of cooking-merits & demerits. Food fortification, enrichment and supplementation. Food additives and Preservatives. Anti-nutritional factors & Toxicants in foods. Food hygiene and sanitation, Food-borne illnesses, infections and food poisoning. Food Adulteration, Food Standards, Laws & Regulations for food safety. Post harvest losses, food spoilage and its causes. Food Processing techniques, effects on nutritional value, food packaging and labelling. Processing techniques for cereals, millets and legumes, milk and milk products, fruits vegetables and oilseeds. Storage of perishable and non-perishable foods.

Textile Science, Fashion Designing and Garment Production: Natural and Man-made fibres: Classification and Processing. Dyes and Pigments - classification of dyeing techniques. Methods of printing (block, screen, stencil, roller, transfer printing and batik). Principles of weaving and basic weaves, Knitting - principles, classification and knitting machines.

Human Development and Family Dynamics: Stages of human development. Physical, emotional, intellectual, social, moral, language and personality development. Role of family, school and peer interaction in the development of the child. Theories of child/human development with special reference to cognitive development theories. Socio- cultural aspects of population growth and population policies. Developmental programmes for women and children. Status of women in India. Approaches to study family- developmental social, psychological and educational. Trends and issues in early childhood care and education. Theories of Personality development.

Family Resource Management and Consumer Science: Systems approach to Family Resource Management, Concept, Planning, Resources, management processes communication. Application of management process to time, money and energy for work simplification. Application of Mundel's classes of change in household work, agricultural and allied tasks. Equipment, tools and accessories for rural and urban houses. Guidelines for budgeting. Banking, e-banking and insurance. Credit. Consumer rights, Consumer Protection Act and other laws. Environment and health hazards due to pollution. Concepts of household and farm waste and its utilization techniques. Environmental education and rainwater harvesting.

Home Science Extension and Communication Methods: Home Science extension education: concept, principles and approaches. Gender sensitivity in extension education programmes. Leadership-concept, types, identification, training and mobilizing local leaders for community participation. Panchayati Raj philosophy, concept, functioning and scope. Extension methods and audio-visual aids. Classification, selection, use and production. Concept, functions, key elements, theories and models of communication. Concept, steps, principles and theories of programme planning. Evaluation concept, significance, methods and tools for monitoring and evaluation. Programmes and agencies promoting women as entrepreneurs. Types and techniques of training for developing entrepreneurial activities in Home Science areas. Self Help Groups-concept, organization, mobilization and functioning of SHGs for sustainability.

Syllabus for written test of Programme Assistant – Lab Technician

Agro-climatic zones of India and Rajasthan, adaptation and distribution of crops. Modern concepts of tillage. Management of crop residue, 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 vermi-compositing. Cropping and farming systems. Precision and organic farming. Irrigation in India and Rajasthan. Quality of irrigation water, requirement, management, drainage. Dryland agriculture in India and Rajasthan. Agronomical study of important crops of Kharif and Rabi of Rajasthan. Problematic weeds of Rajasthan and their physical, cultural, biological and chemical control.

Soil erosion, conservation, essential nutrients, their functions, deficiency, symptoms, soil fertility evaluation, nutrients, recommendation. Manures and fertilizers. Management of saline, saline sodic, sodic and acid soils. Micro-organism in soils and their role. Soil as a medium of plant growth, soil composition, formation, profile, survey and classification. Remote sensing. Physical properties of soil, soil moisture, soil air and temperature in relation to plant growth. Clay minerals, organic colloids, cation exchange phenomenon, soil reaction and buffering capacity.

Chemistry of carbohydrates, lipids, proteins, vitamins and plant (phyto) hormones. Chemistry of Nucleic acid and their functions. Outlines of metabolism of carbohydrates, lipids and protein. General account of enzymes, coenzymes and secondary metabolites. Brief outlines 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. Anatomy and morphology of grasshopper. Insect reproduction and development; identification. Lac culture, sericulture and apiculture. Physical, mechanical, cultural, chemical, biological, legal and modern approaches to control insect-pests.

Importance of microbes in agriculture. Micro-organism and their classification, nutrition, growth and reproduction. Host-microbe relationship. Morphology, reproduction, nutrition and nomenclature of fungi. Classification of plant pathogenic fungi. Importance of plant pathology. 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, their morphological structure, biology, ecology and various physiological processes. Symptomatology and nematode diseases with special reference to root-knot, reniform, citrus, ear cockle, tundu and molya and their management. Interaction of plant parasitic nematodes with other micro-organisms like fungi, bacteria and viruses.

Variation - its causes and importance in Plant Breeding. Pollination and fertilization. Cell structure and division. Mendel and his work. Gene interactions. Multiple alleles and blood groups. Linkage, crossing over and mapping of chromosomes. Sex determination. Multiple genes. Gene mutations, chromosomal aberrations and polyploidy. Cytoplasmic, chromosomal inheritance. Breeding methods of self, cross and vegetatively propagated crops. Sterility and incompatibility and application in plant breeding. Heterosis. Seed production and certification of important crops. Breeding for diseases and pest resistance. Mutation and polyploidy breeding. Application of genetic engineering and biotechnology in crop improvement.

Floriculture - ornamental gardening styles, features. Winter, Summer and Rainy season annuals. Flower arrangement. Vegetables - type of farming and classification. Raising of seedling in nursery. Cultivation of important vegetables. 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.

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. Crop production in relation to stress.

Importance of Livestock and poultry in national economy. Cattle management and housing of cattle, buffalo, sheep, goat poultry and camel. 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. Purchase of dairy animals. Infertility, sterility, their causes and prevention. Hatching, brooding and feeding management in poultry.

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 principals of farm management, financial tools of farm management, farm planning and budgeting. Risk and uncertainty in agriculture. Importance of agri-business in Indian Economy. 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. History of early extension programmes in India, five year plans. Developmental programmes and institutions- IRDP, HYVP, RLEGP, T&V, NAIP, RKVY, TRYSEM, PMRY, Swarn Jayanti Gram Swarajgar Yojna, KVK, ATIC, IVLP and ATMA.

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 -The above syllabus is for written examination and exact date of written examination and interview will be intimated soon on the website and through call letters.