Pre-PG SCHEME OF EXAMINATION

In the very nature of competitive examination no syllabus can be prescribed. It is an exercise to pick up the best. However, for guidance to the candidates the syllabus and standard of the Entrance Test will be that of B.Sc. (Agriculture) and B.Sc. (Home Science) examination of Agricultural Universities of Rajasthan.

	Units	Approximately No. of Questions in Unit
A.	**Faculty of Agriculture :**	
	01. Agronomy	10
	02. Soil Science	10
	03. Plant Pathology + Nematology	10
	04. Entomology	10
	05. Plant Breeding & Genetics	10
	06. Horticulture	10
	07. Animal Production	10
	08. Ag. Economics & Statistics	10
	09. Extension Education	10
	10. Biochemistry + Plant Physiology	10
	Total	**100**
B.	**Faculty of Home Science**	
	01. Home Management	20
	02. Child Development	20
	03. Foods & Nutrition	20
	04. Home Science Extension Education	20
	05. Clothing and Textiles	20
	Total	**100**

- ☞ The Question paper will be in English only.
- ☞ The Question paper will consist of multiple choice objective type questions.
- ☞ The question paper of either faculty will be in the form of a test booklet containing 100 questions bearing number 1, 2, 3..... 100. There would be four suggested answers (1,2,3,4) for each question. The candidates are required to choose the correct answer and blacken the corresponding circle (Details for filling answer sheet is given on side I of sample answer sheet) in the answer sheet by black ball point pen.
- ☞ The test booklet may be used by the students for rough work and the squares printed in it may be used for deciding the correct answer from the various alternatives. It will be collected from them at the end of the examination along with the answer sheet. **Assessment will be made only on the basis of the answer sheet.** Candidates may carry question booklets with them at the end of examination.
- ☞ Four marks will be awarded for every correct answer and one mark will be deducted for every wrong answer. **Thus there will be negative marking. Multiple marking will be considered wrong answer.**
- ☞ Answer sheet along with answer key will be displayed on web site. Discrepancy if any may be communicated within stipulated time, thereafter no complaint will be entertained.
- ☞ Merit of Pre-P.G. examination will be notified on university website or conveyed through SMS. The candidates securing 33% marks or above (28% or above for SC/ST/OBC/SBC) would be eligible for submitting the Option Form. In case of home science if passed candidates will be less than the number of seats option forms will be call in 1:1.5 ratio on the basis of merit.
- ☞ Subject will be allotted to the candidates only on the basis of their merit and online option form except in spot counselling if any, keeping reservation under consideration.

SYLLABUS FOR PRE-PG TEST

A - Faculty of Agriculture

1. Agronomy:

Agro-climatic zones of India and Rajasthan, adaptation and distribution of crops. Weather and climate. Basics of weather forecasting. 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: occurrence, cycling in soils and their availability. INM concept and vermi-compositing. Cropping and farming systems. Sustainable agriculture: concept and details. Organic farming: principles, objectives, certification, labelling and accreditation process. Water resources of India and Rajasthan. Methods of irrigation. Irrigation efficiencies. Water management in crops. Quality of irrigation water. Agricultural drainage: methods. Dryland agriculture in India and Rajasthan. Concept, importance, objectives and benefits of watershed. Agronomy of important crops of *kharif, rabi and zaid* seasons of Rajasthan. Weed biology and ecology, crop-weed association. Problem of weeds in Rajasthan and their physical, cultural, biological and chemical control. Integrated weed management.Herbicide selectivity. Adjuvants.

2. Soil Science and Agricultural Chemistry:

Soil erosion, conservation, essential nutrients, their functions, deficiency symptoms and their availability, soil fertility evaluation, nutrient recommendation. Manures and fertilizers. Formation and 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 properties of soil, soil moisture, soil air and temperature in relation to plant growth. Clay minerals, organic and inorganic colloids, cation exchange phenomenon, soil reaction and buffering capacity. Soil structure, soil texture, rocks and minerals.

3. Biochemistry/ Biotechnology:

Chemistry of carbohydrates, lipids, proteins 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 metaboliets. Brief out lines of plant tissue culture and plant biotechnology. Molecular markers and their application in Agriculture.

4. Entomology:

Animal kingdom- Classification and nomenclature. Economic importance of Arthropods, insects and mites in particular. 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 other modern approaches of insect pest management.

5. Plant Pathology:

Importance of microbes and plant pathology in agriculture. Micro-organisms (Fungi & bateria) and their classification, nutrition, growth and reproduction. Host-pathogen relationship. Morphology, reproduction, nutrition and nomenclature of fungi. Classification of plant pathogenic fungi. Symptomatology. Disease development and methods of plant disease control of important crops (cereals, pulses, oil seeds, fruits, vegetables and cash crops). Integrated disease management and principles of plant disease control.

6. Nematology:

Introduction and brief history of plant parasitic nematodes, their morphological structure, biology, ecology and various physiological process. 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, etc.

7. Plant Breeding and Genetics:

Variation – its causes and importance. Pollination and fertilization. Cell structure and division. Mendal and his work. Gene interactions. Multiple alleles and blood groups. Linkage, crossing over and mapping of chromosomes. Gene mutations, chromosomal aberrations, polyploidy and their role in crop improvement. Cytoplasmic and chromosomal inheritance. Sterility and incompatibility and their application in plant breeding. Heterosis and its exploitation for crop improvement. Germplasm

conservationand and exploitation. Breeding methods of self, cross and vegetatively propagated crops. Breeding for biotic and abiotic stresses. Application of genetic engineering and biotechnology in crop improvement. Seed, its types and classes. Seed certification: principles and procedures. Minimum seed certification standerds. Seed production of important field crops.

8. Horticulture:

Floriculture- History of ornamental gardening, garden styles, garden features and important commercial cut flowers and loose flowers cultivation. Uses of ornamental annuals, trees, shrubs and climbers. Vegetables- importance in human diet, type of farming and classification. Raising of seedling in nursery and portray. 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. Seed spices production technology.

9. Plant Physiology:

Cell, physiological functions of cell organelles, plant water relations, photosynthesis and photo-respiration. Respiration. Inorganic plant nutrition, physiology of flowering, Photoperiodism. Physiology of growth, PGRs and their role. Biosynthesis and physiological responce of PGRs. Seed development, germination and dormancy. Crop production in relation to stress.

10. Animal Husbandry:

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 and sterility, their causes and prevention. Hatching, brooding and feeding management in poultry. Hay and silage making.

11. Agricultural Economics:

Meaning of utility, factors of production and their characteristics. Classical production function and law of diminishing returns. Factors affecting demand and supply. Price determination. Concept of elasticity and its measurement. Agricultural finance. Credit and credit institution. Agricultural cooperation. Nature and problems of agricultural marketing and prices. Regulated market. Marketing channels and price spread. Cooperative marketing. Nationalization of commercial banks. Economic principles of farm management, financial tools of farm management and farm planning and budgeting. Risk and uncertainty in agriculture. Importance of agri-business in Indian Economy. Discounted and un-discounted methods of project analysis. Marketing management.

12. Extension Education:

Extension Education- Definition, objectives and principles. Rural sociology: Meaning, definition, scope, social control and social change. 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 and adoption of agriculture innovations. Pre-independence extension programmes in India: Gurgoan, Marthandam, Shriniketan and Sewagram projects. Developmental programmes and institutions- IRDP, CD, NES, Punchayati Raj System, T & V system, NATP, PMRY, Swarn Jayanti Gram Swarojgar Yojna, KVK, ATIC, IVLP and ATMA. Entrepreneurship development: concept and meaning. Government schems and incentives for promotion of enterpreneurship. Contract farming and joint ventures, public private partnership.

13. Agricultural Statistics:

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.

B - Faculty of Home Science

1. Family Resource Management:

System approach to management. Management concepts: value, goals, standards. Management process. Resources-classification and characteristics. Communication –process, classification, barriers, Decision making process. Time management and work simplification. Money management. Housing and its importence, selection of site, orientation and zoning, factors considured while planning a house, building materials, house wiring-Electrical fittings and fixtures. Housing problems in India. Housing finance. Elements of art and principles of design, colour, home lighting, flower arrangement. Human wants and demands. Family budget, savings and investment. Consumer problems, consumers' rights and responsibilities, standardization, grading, labeling and packaging, unfair trade practices, consumer protection and welfare, Right to information. Marketing mix and marketing environment, marketing research. Product planning. Sales management. Entrepreneurship-definition, classification, importance, Government support. Selection, use and care of household equipment.

2. Human Development and Family Studies:

Meaning, purpose, scope and principles. Stages of growth and development. Developmental pattern and task of children till adolescence. Physical and motor development, cognitive, mental development, emotional, social and personality development. Moral development and guidance. Family: meaning and definition, functions of traditional and modern family, stages of family, lifecycle, expectations and specific roles of family members of each stage. Importance of family and child welfare. Classification and various areas of family and child welfare services in India and role of National and International agencies. Theories of child development-Cognitive theory of Jean Piaget, Erikson's theory of psychological development. Early childhood care and development. Children with developmental challenges.

3. Food & Nutrition:

Functions, Sources, deficiency and excess intake of energy, carbohydrates, proteins, fat, fat soluble and water soluble vitamins and minerals (Classification and chemistry of amino acids and carbohydrates). Interrelationship of nutrients. Cooking methods- merits and demerits. Methods, principles and advantages of food preservation. Meal planning: importance, factors to be considered, planning meals for family, modification of diet for various age, sex and income groups and physical and physiological conditions of body. Modification of normal diet to therapeutic diet. Diet during disease like fever, liver disease, cardiovascular diseases and metabolic disorders like overweight, under weight and diabetes. Assessment of nutritional status, nutritional problems arising from food habits. Role of National and International agencies for overcoming nutritional problems in India.

4. Home Science Extension and Communication Management:

Meaning, aims and functions in rural development, philosophy and principles of Home Science Extension Education. Problems of rural society. Concept and need of rural development. Audio-Visual Aids- Role and classification. Teaching methods– nature, principles, classification, advantages and limitations of each method, principles of extension teaching. Difference in teaching in formal and informal situation. Achievements and failures of community development programme. Panchayati Raj, Voluntary organization and their role in rural development, rural leadership. Concept, importance, elements and problems of communication, Meaning of adoption and diffusion. Meaning and characteristics of innovation. Stages and factors affecting adoption. Nature, role, meaning, principles and process of programme planning. Characteristics of good programme, problems of extension work and ways to solve them. Concept, importance and methods of evaluation, use of evaluation result in programme planning. Rural development programmes-ICDS, IRDP, TRYSEM, *Swarn Jayanti Gram Swarozgar Yojna* and MGNREGA, India's five year plans with special reference to rural development.

5. Textile and Apparel Designing:

Classification, properties and basic concepts of production of textile fibre, yarn structure, complex and textured yarns, various fabric construction processes. Loom and its parts. Basic and fancy weaves. Printing and their methods. Dyes and their application, general and special finishes. Principles and process of laundering, laundry equipments, water, soaps and detergents, bleaches, blues, stiffening agents and their uses, laundering and stain removal of different fabrics. Dry-cleaning and storage of cloths. Social-phychological aspects and needs of clothing in the family. Changing needs of the family. Study of ready-made and tailor made garments in terms of finish, cost and quality. Clothing budget for the family of different income levels, size, habits and needs. Principles in selecting fabrics, colours and textures for different age groups. Traditional textiles of India and embroidery. Flat pattern methods, shifting of darts by slash and pivot method. Principles and elements of design applied to apparel designing. Introduction of CAD, CAM. Application of CAD in Textile and Apparel Designing. Fasion Terminology, Fashion cycle, theories of fashion adoption, factors affecting fashion.