UNIT-I
Chemical bonds and forces, concept of pH and buffer, thermo chemistry, chemical equilibrium, chemical kinetics. Aliphatic and Aromatic hydrocarbons- concept of aromaticity, methods of preparation and chemical properties of alcohols, phenols, aldehydes, ketones, carboxylic acids, nitro compounds and amines. Different methods of purification, qualitative and quantitative analysis. Solutions- concentration terms, liquid- properties, surface tension, viscosity and its applications. Surface chemistry-adsorption, homogeneous and heterogeneous catalysis, colloids and suspension.

UNIT-II
Types of micro organism associated with food, their morphology and structure, factors affecting their growth, microbiological standards, sources of micro organism in food, some important food spoilage micro organisms, fermentation- definition and types, micro organisms used in food fermentation, dairy fermentation, fermented foods- types, methods of manufacture for vinegar, sauerkraut, soya sauce, beer, wine and traditional Indian foods.

UNIT-III

UNIT-IV
Immune system- types of immunity, antigen-antibody reaction. Diseases- deficiency diseases, communicable diseases and diseases caused by animals (protozoans, helminthes, arthropodans).

UNIT -V
Genetically modified plants and animals, plant and animal tissue culture and its application, importance of GM-crops and their products, environmental bio technology- pollutants, Biomagnification and microbial bioremediation . Statistical analysis- mean, median, mode, standard deviation, regression and co-relation, T-test, variance, chi-square test.

UNIT -VI
Salient features of agriculture with special reference to Rajasthan. Soil Fertility and Management of Problematic Soils in Rajasthan. Introduction to Dry land Farming and Agro-forestry. Introductory knowledge about Production Techniques of important field crops (Wheat, Mustard, Groundnut, Pulses, Bajra, Maize). Horticultural crops (Citrus, Mango, Guava, Ber, Onion, Tomato, Cucurbits, Chilli, Rose etc.) Spices and Medicinal crops (Cumin, Fenugreek, Fennel, Coriander, Isabgol, Aloevera, etc.) Important diseases and Pests of major Crops and their Management. Importance of agriculture marketing. General awareness about Seed science and Crop Physiology.

UNIT-VII

UNIT-VIII
Present status of Food Technology in India and Rajasthan. General methods of food preservation and food processing. Importance of Post harvest technology of fruits and vegetables. Technology for processed products like Squash, Jelly, Sauce, Pickles etc. Post harvest Physiology and handling of fruits and vegetables. Types and functions of Packaging materials used in fresh and processed food. Food laws - brief review of regulatory status in India (FPO, Prevention of Food adulteration Act, Food Safety and Standard Act, Testing Food for its Safety, AGMARK). Hygiene and Sanitation (HACCP, Good Manufacturing Practices, Good Laboratory Practices etc.)

UNIT-IX
Pre & Early history of Rajasthan. Age of Rajput: Major dynasties of Rajasthan and the achievements of prominent rulers. Emergence of Modern Rajasthan: factors of Socio-Political awakening of 19th century; Peasants and tribal movements of 20th century; Political struggle of 20th century and the integration of Rajasthan.
UNIT-X
Visual Art of Rajasthan - Architecture of forts and temples of Rajasthan; Sculpture traditions of Rajasthan and various schools of painting of Rajasthan.
Performing Art of Rajasthan - Folk music and musical instruments of Rajasthan; folk dance and folk drama of Rajasthan.

UNIT-XI
Various religious cults, saints and folk deities of Rajasthan.
Various dialects and its distribution in Rajasthan; literature of Rajasthani language.

UNIT-XII
Geography of Rajasthan : Broad physical features- Mountains, Plateaus, Plains & Desert; Major rivers and lakes; Climate and Agro-climatic regions; Major soil types and distribution; Major forest types and distribution; Demographic characteristics; Desertification, Droughts & Floods, Deforestation, Environmental Pollution and Ecological Concerns.

UNIT-XIII
Economy of Rajasthan : Major Minerals-Metallic & Non- Metallic; Power Resources- Renewable and Non Renewable; Major agro based industries-Textile, Sugar, Paper & Vegetable oil; Poverty and Unemployment; Agro food parks.

UNIT-XIV

Pattern of Question Papers :
1 Objective Type Paper.
2 Maximum Marks : 150
3 Number of Questions : 150
4 Duration of Paper : Three Hours
5 All Questions carry equal marks.
6 There will be Negative Marking.

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