

# **SRI KRISHNADEVARAYA UNIVERSITY :: ANANTAPUR**

## **DEPARTMENT OF MICROBIOLOGY**

### **M.Phil/Ph.D. Written Examination**

#### **Broad Area of Research: IMMUNOLOGY**

#### **Syllabus for Paper II : Special Paper**

Lymphocyte development and receptors - Organization of the immune system, Characteristics of immune response, Immune cell traffic, Cell development, Lymphocyte apoptosis, Cytokines and chemokines.

Lymphocyte function and interaction - Repertoires, Tolerance and Auto-reactivity. Antigen Processing and Presentation, Cell activation and interactions in responses, Phenotype and Function of immune cells, Immune effector mechanisms and inflammation. Regulation, suppression and control of responses.

Antigen receptors and adhesion molecules - Antigen receptors, Structure, Genetics and function of antibodies and T-cell receptor. Somatic mutation. Major Histocompatibility Complex, Antibody cloning and engineering. The complement system, adhesion molecules.

Antigen recognition and vaccine design - Characteristics of antigens and vaccines, methods of detecting autoantigens, Molecular mimicry and autoimmune diseases. Structure, genetics and functions of cytokines. Cytokine-based immunotherapy.

Protective immunity - Pathology of infection by bacteria, viruses, fungi and parasites. The mechanisms of immunity in infection. Viruses and cancer, immunization and disease control. Pathogen city factors in bacteria. Immunity to mycobacteria, immunity to parasitic infections and tropical diseases.

Immunodeficiency, allergy, AIDS vaccines. Allorecognition and immunology of tissue and organ transplantation.

Autoimmunity and diseases - Immunology of organ specific autoimmune diseases, immunology of multisystem autoimmune diseases, immunology of rheumatic diseases, Principles and applications of immunotherapy.