

**DSE ZOOLOGY 4**  
**IMMUNOLOGY****THEORY****(CREDITS 4)****Unit 1: Overview of the Immune System****10**

Introduction to basic concepts in immunology, components of immune system, principles of innate and adaptive immune system

**Unit 2: Cells and Organs of the Immune System****8**

Haematopoiesis, Cells of immune system and organs (primary and secondary lymphoid organs) of the immune system

**Unit 3: Antigens****8**

Basic properties of antigens, B and T cell epitopes, haptens and adjuvants

**Unit 4: Antibodies****8**

Structure, classes and function of antibodies, monoclonal antibodies, antigen antibody interactions as tools for research and diagnosis

**Unit 5: Working of the immune system****12**

Structure and functions of MHC, exogenous and endogenous pathways of antigen presentation and processing, Basic properties and functions of cytokines, Complement system: Components and pathways.

**Unit 6: Immune system in health and disease****10**

Gell and Coombs' classification and brief description of various types of hypersensitivities, Introduction to concepts of autoimmunity and immunodeficiency,

**Unit 7: Vaccines****4**

General introduction to vaccines, Various types of vaccines

**IMMUNOLOGY****PRACTICAL****(CREDITS 2)**

- 1\*. Demonstration of lymphoid organs
2. Histological study of spleen, thymus and lymph nodes through slides/ photographs
3. Preparation of stained blood film to study various types of blood cells.
4. Ouchterlony's double **immuno**-diffusion method.
5. ABO blood group determination.
- 6\*. Cell counting and viability test from splenocytes of farm bred animals/cell lines.
7. Demonstration of
  - a) ELISA
  - b) **Immuno**electrophoresis

**(\*Subject to UGC guidelines)****SUGGESTED READINGS**

- Kindt, T. J., Goldsby, R.A., Osborne, B. A. and Kuby, J (2006). **Immunology**, VI Edition. W.H. Freeman and Company.
- David, M., Jonathan, B., David, R. B. and Ivan R. (2006). **Immunology**, VII Edition, Mosby, Elsevier Publication.
- Abbas, K. Abul and Lichtman H. Andrew (2003.) *Cellular and Molecular Immunology*. V Edition. Saunders Publication.