

B.Sc., BIOTECHNOLOGY
B.Sc., II – SEMESTER IV - W.E.F. 2016-17
BT401: IMMUNOLOGY

UNIT I

Immune system, Organs and cells of immune system Immunity, innate immune mechanism Acquired immune mechanism, Antigen, Antigenicity (factors affecting antigenicity) Humoral immunity, main pathways of complement system.

UNIT II

Antibody structure and classes, Antibody diversity, Genes of antibodies, Theories of formation of antibodies.

UNIT III

Cell mediated immunity: TC mediated immunity, NK cell mediated immunity, ADCC, delayed type hypersensitivity, cytokines and brief idea of MHC.

UNIT IV

Hypersensitivity and vaccination: General features of hypersensitivity, various types of hypersensitivity, Vaccination: Discovery, principles, significance. Concept of autoimmunity.

UNIT V

Immunological Techniques: Antigen-antibody reactions: Precipitation, agglutination, complement fixation, immunodiffusion, ELISA.

Hybridoma technology: Monoclonal antibodies and their applications in immunodiagnosis.

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B.Sc. II SEMESTER IV PRACTICALS

BIOTECHNOLOGY

BT 402: IMMUNOLOGY & BIOPHYSICAL TECHNIQUES

1. Antigen – antibody reaction – determination of Blood group
2. Pregnancy test
3. Widal test
4. Ouchterloney immunodiffusion
5. Radial immunodiffusion
6. ELISA
7. Isolation of casein by isoelectric precipitation
8. Production of antibodies and their titration

Note: - Mandatory to perform at least 6 practicals

BSc II BIOTECHNOLOGY
SEMESTER IV
MODEL QUESTION PAPER
COURSE CODE: BT 401
COURSE NAME: IMMUNOLOGY

Time 3 Hrs

Marks 75

Attempt any *five* questions from Part A and *all* questions from Part B
PART A (5x3=15 Marks)

Note: At least one question must be set from each UNIT

1. Define immunity
2. what is antigen?
3. Define antibody
4. Types of antibodies
5. NK Cell
6. hypersensitivity
7. Principle of Elisa
8. Vaccines uses

PART B (5x12=60 Marks)
Answer the following

- 9 (a) Discuss in detail on elements of complementation system
Or
(b) Explain the mechanisms involved in innate immunity and add note on advantages
- 10 (a) Write on IgG structure.
Or
(b) Discuss on formation of antibodies.
- 11 (a) Discuss in detail on delayed hypersensitivity reactions.
Or
(b) Explain the mechanics of MHC.
- 12 (a) What are vaccines? How are they produced?
Or
(b) Discuss about autoimmunity and add note on its advantages.
- 13 (a) Discuss the principles of antigen and antibody interactions..
Or
(b) What are monoclonal antibodies? How are they being prepared and used?