

ADIKAVI NANNAYA UNIVERSITY
CBCS/ SEMESTER SYSTEM
IV SEMESTER : B.SC BIOTECHNOLOGY
W.E.F 2015-16 ADMITTED BATCH

BTT-401: IMMUNOLOGY

UNIT I

Immune system: Organs and cells of immune system Immunity, Immune response, innate immune mechanism, Acquired immune mechanism, Antigen, Humoral immunity, main pathways of complement system.

UNIT II

Antibody and Antigen: Antibody structure and classes, Antibody diversity, Types of Antigens Antigenecity (factors affecting antigenecity). Complement system .

UNIT III

Immunity: Cell mediated immunity: TC mediated immunity, NK cell mediated immunity, ADCC, brief description of cytokines and MHC (MHC types and diversity)

UNIT IV

Hypersensitivity and vaccination : General features of hypersensitivity, various types of hypersensitivity, Autoimmune response, Vaccination: Discovery, principles, significance, Types of Vaccines

UNIT V

Immunological Techniques:Antigen-antibody reactions: Precipitation, agglutination, complement fixation, immunodiffusion, ELISA. Hybridoma technology: Monoclonal antibodies and their applications in immunodiagnosis.

PRACTICALS: BT- 402 IMMUNOLOGY & BIOPHYSICAL TECHNIQUES

1. Antigen – antibody reaction – determination of Blood group , Cross reactivity
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 atleast 6 practicals

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MODEL QUESTION PAPER FOR FOURTH SEMESTER END EXAM

B. Sc Degree Course (CBCS Semester pattern)

B. Sc Biotechnology (Theory)

Duration: 3hrs

Max. marks: 75

SECTION –A

Answer any Five questions

5x5 =25marks

- 1) Humoral immunity
- 2) Complement system
- 3) NK cell mediated immunity
- 4) Autoimmune response
- 5) ELISA
- 6) Agglutination
- 7) Define Antigen, Antibody, Hapten, Plasma cells, Macrophages
- 8) MHC types and diversity

SECTION-B

Answer the questions

5x10 =50marks

- 9) a) Describe Organs and cells of immune system Immunity
Or
b) Describe main pathways of complement system
- 10) a) Describe Antibody structure and classes
Or
b) Describe Types of Antigens and factors affecting antigenicity
- 11) a) Describe Cell mediated immunity and its types
Or
b) Describe cytokines and MHC
- 12) a) Describe General features of hypersensitivity and various types of hypersensitivity
Or
b) Describe principles, significance, Types of Vaccines
- 13) a) Describe Antigen-antibody reactions
Or
b) Describe Hybridoma technology and its applications.

**MODEL QUESTION PAPER FOR SEMESTER END PRACTICAL
EXAMINATIONS**

B.Sc., IV Semester End Practical examination

B.Sc., Biotechnology

TIME: 3 hours

Max. Marks: 50

1. Determination of Blood group (Major experiment). 20 marks
(Principle-5M, Methodology-10M, Results-05)

2. Ouchterloney immunodiffusion (Minor experiment). 10 marks
(Principle -2M, Methodology-05M, Results-03)

1. Identify the given spotter and write a brief note on it- A, B, C,D,E, F
(5x2M)10 marks

2. Record 05 marks

3. Viva-voce 05 marks