2024/SEM/EVEN/08/28/BTY-653B/318

PG Even Semester Exam, 2024

Biotechnology

4th Semester

COURSE NO. BTYCC – 653 B

[Molecular Imminology and Immunotechnology]

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer five questions, taking one from each Unit

UNIT-I

1. a. What is innate immunity? What are the components of innate immunity? 1+6=7

   b. What are cytokines? Discuss their properties and actions in brief. 1+3+3=7

2. Write an account on the generation of antibody diversity. 14

UNIT-II

3. Write brief notes on: 3.5x4=14

   a. Affinity maturation

   b. Src kinases

Turn over

   c. Molecular mimicry

   d. Hypersensitivity

4. What are the stages of B-cell development? Discuss the signaling of B-cell development and maturation. 6+8=14

UNIT-III

5. Discuss the immunologic basis of graft rejection and explain the T-cell mediated immune rejections with a graphical presentation. 14

6. a. What are monoclonal antibodies? Describe the techniques used to generate monoclonal antibodies. 7

   b. What is immunotherapy? Describe any two types of immunotherapies. 1+6=7

UNIT-IV

7. a. Discuss the various animal models used in immunological studies. 7

   b. Write a note on antibody engineering and the production of chimeric antibodies. 7

8. Discuss the application of stem cell technology in medicine. 14

UNIT-V

9. What are nucleic acid vaccines? Describe the DNA and RNA vaccine preparation. 14

10. a. Describe the vaccine response. 8

    b. Write notes on the following (with two examples: 3x2=6

       i. Recombinant vaccine

       ii. Combined vaccine (with two examples)

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