

**2023**  
**B.A./B.Sc.**  
**Sixth Semester**  
DISCIPLINE SPECIFIC ELECTIVE – 4  
**ZOOLOGY**  
*Course Code: ZOD 6.21*  
(Immunology)

*Total Mark: 70*  
*Time: 3 hours*

*Pass Mark: 28*

*Answer five questions, taking one from each unit.*

**UNIT-I**

1. Explain in detail about the organ involved in the immune system. 14
2. Describe the important feature of immunogen. Add a note on adjuvants. 7+7=14

**UNIT-II**

3. Define innate immunity. Explain the different types of cells involved in innate immunity. 2+12=14
4. Write a note on the following: 7×2=14
  - (a) Cell-mediated immunity
  - (b) Active artificial immunity and active natural immunity

**UNIT-III**

5. Give an account on the structure of immunoglobulin with a neat diagram. Add a note on the principle of RIA. 10+4=14
6. Write a note on the following: 7×2=14
  - (a) Antigen-antibody reaction
  - (b) Monoclonal antibodies in diagnosis

#### UNIT-IV

7. Explain in detail about the steps involved in the endogenous pathway of antigen processing and presentation, with a neat diagram. 12+2=14
8. Give an account on the properties of cytokine. What are the potential therapeutic applications of cytokine in the treatment of various diseases? 10+4=14

#### UNIT-V

9. Discuss the alternative pathway of the complement system. How does it differ from classical and lectin pathway? 10+4=14
  10. Define vaccine. Elaborate the different types of vaccines. 2+12=14
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