

NKT/KS/17/6562

**B.Pharm. Semester—IV (C.B.S.) Examination**  
**PHARMACEUTICAL MICROBIOLOGY AND IMMUNOLOGY—II**  
**Paper—5**

Time : Three Hours]

[Maximum Marks : 80

- N.B. :—** (1) Question No. **1** is compulsory.  
(2) Solve any **FOUR** questions from remaining.  
(3) Draw neat labelled diagram wherever necessary.

1. Solve any **five** questions :
  - (a) Define D value and Z value.
  - (b) Give the factors affecting disinfectant action.
  - (c) Differentiate between exotoxins and endotoxins.
  - (d) Differentiate between vaccines and sera.
  - (e) What are antigens ?
  - (f) Comment on sources of contamination in aseptic area and methods of prevention. 4×5=20
2. Explain non-specific defense mechanisms of host. 15
3. Give the applications of antigen-antibody reactions. Explain the different types of antigen antibody reactions. 15
4.
  - (a) Discuss the different types of hypersensitivity reactions. 8
  - (b) Define immunity. Describe the different types of immunity. 7
5.
  - (a) Explain the mechanism and process of moist heat sterilization. 8
  - (b) What are sterilization indicators ? Explain the different types of it. 7
6.
  - (a) Explain the method of preparation of BCG vaccine or diphtheria toxoid. 8
  - (b) Describe the construction, working and applications of laminar air flow unit. 7
7. Write short notes on any **three** :
  - (a) Sterility testing of pharmaceutical products as per I.P.
  - (b) Design of aseptic area
  - (c) Tuberculin test as diagnostic agent
  - (d) Classification of disinfectants and ideal properties of disinfectants. 3×5=15