

**Third B.Pharm (Ayurveda) Degree Examinations, October 2017**  
**Pharmaceutical Microbiology & Biotechnology**

**Time: 3 Hours**

**Total Marks: 100**

- Answer all questions.
- Write **SECTION A** and **SECTION B** in separate Answer books (32 Pages). Do not mix up questions from Section A and Section B.

**QP CODE: 304008**

**Section A- Microbiology**

**Marks: 50**

**Essay:**

**(10)**

1. Define sterilization. What are the different methods of sterilization. Explain principle and working of steam sterilizer

**Short notes:**

**(5x5=25)**

2. Viral replication
3. Principle and procedure of gram staining
4. Explain structure of bacteria
5. Phenol coefficient
6. Sterility testing of small volume parenterals

**Answer briefly:**

**(5x3=15)**

7. Interferon
8. Nutritional requirements of bacteria
9. Mutation
10. Rickettsiae
11. Acid fast staining

**QP CODE: 308008**

**Section B - Biotechnology**

**Marks: 50**

**Essay:**

**(10)**

1. Discuss in detail about hybridoma technique for production of monoclonal antibodies

**Short notes:**

**(5x5=25)**

2. Microbial transformations
3. Fermentation and purification of penicillin
4. Types of hypersensitivity reactions
5. Techniques of enzyme immobilization
6. Antigen-antibody reaction

**Answer briefly:**

**(5x3=15)**

7. Define antigen, hapten and antibody
8. Transduction
9. Gene cloning
10. Storage of vaccines
11. Toxins and toxoids

\*\*\*\*\*