

**Third B. Pharm (Ayurveda) Degree Supplementary Examinations**  
**August 2023**  
**Pharmaceutical Microbiology & Biotechnology**

**Time: 3 Hours**

**Total Marks: 100**

- *Answer all questions to the point neatly and legibly • Do not leave any blank pages between answers • Indicate the question number correctly for the answer in the margin space*
- *Answer all parts of a single question together • Leave sufficient space between answers*
- *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. Classify bacteria. Explain the structure of bacterial cell

**Short notes:**

**(5x5=25)**

2. What are the different staining techniques
3. Dry heat sterilization
4. Viral Multiplication
5. Microbiological assay of vitamins
6. Explain immunity

**Answer briefly:**

**(5x3=15)**

7. Evaluation of disinfectant
8. Scope of microbiology.
9. Classification of fungi
10. Sterility testing of pharmaceutical products
11. Interferon

**QP CODE: 308008**

**Section B - Biotechnology**

**Marks: 50**

**Essay:**

**(10)**

1. Explain various genetic recombination techniques

**Short notes:**

**(5x5=25)**

2. Discuss the fermentation process for production of penicillin
3. Explain the enzyme immobilization techniques
4. Design of fermenter
5. Active and passive immunization
6. Biotransformation process

**Answer briefly:**

**(5x3=15)**

7. Hyaluronidase
8. Antigen-antibody reaction
9. Haptens
10. Humulin
11. Humoral immunity

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