

**Third B. Pharm (Ayurveda) Degree Regular/Supplementary Examinations**  
**March 2024**  
**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. Describe bacterial growth curve. Add a note on factors affecting growth of bacteria.

**Short notes:****(5x5=25)**

2. Morphological classification of Fungus and spores related to reproduction.
3. Discuss the principle and procedure of Gram's staining
4. What are the nutritional requirements of bacteria
5. Classify sterilization techniques
6. How sterility is tested in pharmaceutical products

**Answer briefly:****(5x3=15)**

7. Dry heat sterilization
8. Principle of acid-fast staining
9. Features of an ideal disinfectant
10. Types of viruses
11. Use of microbial assay

**QP CODE: 308008****Section B - Biotechnology****Marks: 50****Essay:****(10)**

1. Write a note on antigen-antibody reactions and their applications.

**Short notes:****(5x5=25)**

2. Preparation of vaccines
3. Discuss the transformation and conjugation methods on genetic recombination.
4. What are the applications of rDNA technology
5. Discuss the production of Penicillin
6. Production of Vitamin B<sub>12</sub>

**Answer briefly:****(5x3=15)**

7. Techniques of enzyme immobilization
8. Applications of enzyme immobilization
9. Microorganism mediated reactions
10. Enzyme kinetics
11. Microbial biotransformation of steroids

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