

**Third Year B.Pharm Degree Supplementary Examinations  
November 2018  
Pharmaceutics III  
(Pharmaceutical Microbiology and Biotechnology)  
(2012 Scheme)**

**Time: 3 Hours**

**Total Marks: 100**

- Answer all Questions.
- Draw diagram wherever necessary.

**Essays**

**(3x10=30)**

1. Define culture medium. Describe in detail nutritional requirement of bacteria with examples.
2. Define monoclonal antibody. Explain various steps involved in developing monoclonal antibody using hybridoma technology.
3. Define microbiological transformation. Describe in detail biotransformation of steroids.

**Short notes**

**(14x5=70)**

4. Principle involved in gram staining technique.
5. Isolation of pure culture.
6. Chemical nature of antigens.
7. Difference between cellular and humoral immunity.
8. Antigen - antibody reaction with examples.
9. Principle involved in radiation sterilization.
10. Down-streaming process of vitamin B<sub>12</sub> with diagram.
11. Techniques used in entrapment of enzymes.
12. Brief any one of the staining method used for identification of *Mycobacterium* species.
13. Life cycle of virus with example.
14. Phage typing.
15. Immunological tolerance.
16. Factors affecting disinfectant action.
17. Standardization of antibiotics in brief.

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