

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B. Pharm. – SEMESTER – V • EXAMINATION – WINTER • 2016**

**Subject Code: 2250002****Date: 22-11-2016****Subject Name: Pharmaceutical Microbiology and Biotechnology - I****Time: 10:30 am - 01:30 pm****Total Marks: 80****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

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|------------|---|-----------|
| <b>Q.1</b> | (a) Define sterilization. Classify various methods of sterilization. Write in brief about Hot Air Oven.   | <b>06</b> |
|            | (b) Write brief note on Ethylene Oxide sterilization.   | <b>05</b> |
|            | (c) Discuss in detail about Bubble pressure test used to measure pore size of membrane filter   | <b>05</b> |
| <b>Q.2</b> | (a) Enlist various evaluation tests for disinfectants. Describe the Rideal Walker test for phenol. Write its merits & demerits.                                 | <b>06</b> |
|            | (b) Define Disinfectant. Discuss in detail ideal properties of disinfectant.  | <b>05</b> |
|            | (c) Define the following terms: Bioburden, Antiseptic, Thermal death point, Bactericide, Sanitizer  | <b>05</b> |
| <b>Q.3</b> | (a) Discuss the importance of staining in microbiology. Enumerate various staining techniques and write in detail about differential stains.                    | <b>06</b> |
|            | (b) Classify the bacteria based on the temperature and oxygen requirements.   | <b>05</b> |
|            | (c) Differentiate between bright field and dark field microscopy.   | <b>05</b> |
| <b>Q.4</b> | (a) Classify methods of bacterial count. Differentiate between Total count and Viable count methods. Discuss plate count method of counting bacteria in detail. | <b>06</b> |
|            | (b) Draw and discuss in detail normal bacterial growth curve  | <b>05</b> |
|            | (c) Classify bacteria according to their shape and size. Write functions of capsule and fimbriae.   | <b>05</b> |
| <b>Q.5</b> | (a) Describe the structure of DNA and the process of DNA replication.   | <b>06</b> |
|            | (b) Write a brief note on Regulation of gene expression in bacteria.  | <b>05</b> |
|            | (c) Explain the three domain system of classifying microorganisms in detail.  | <b>05</b> |
| <b>Q.6</b> | (a) Describe the structure of virus in detail with a suitable diagram. Discuss methods of cultivation of viruses.   | <b>06</b> |
|            | (b) Write a brief note on Streptomyces.   | <b>05</b> |
|            | (c) Discuss in detail about various techniques used for maintenance and preservation of pure culture.   | <b>05</b> |
| <b>Q.7</b> | (a) Write a brief note on applications of biotechnology in pharmacy. What are the different areas in biotechnology?   | <b>06</b> |
|            | (b) Define enzyme immobilization. Write Advantages and disadvantages of enzyme immobilization.  | <b>05</b> |
|            | (c) Enumerate various methods of enzyme immobilization. Discuss about cross linking method.   | <b>05</b> |