

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

## **GUJARAT TECHNOLOGICAL UNIVERSITY**

**B. Pharm. – SEMESTER – V • EXAMINATION – WINTER 2013**

**Subject Code: 250002**

**Date: 29-11-2013**

**Subject Name: Pharmaceutical Microbiology-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.**

- Q.1**
- (a) Describe the mechanism, conditions and process of Moist Heat sterilization method in detail including its advantages and disadvantages. **06**
  - (b) Discuss in brief about chemical and biological indicators for Heat Sterilization methods. **05**
  - (c) Explain the mode of action for the following Sterilization methods: **05**
    - 1. Ethylene oxide Sterilization
    - 2. Radiation Sterilization method
    - 3. Dry heat method
- Q.2**
- (a) Explain in detail the Rideal Walker test for evaluation of disinfectants **06**
  - (b) Explain the influence of following factors on the activity of disinfectants: **05**
    - 1. Concentration
    - 2. Surface tension
    - 3. Temperature
  - (c) Define the following terms: **05**
    - 1. Disinfection
    - 2. Thermal death time
    - 3. Sterilization
    - 4. Tyndallization
    - 5. D value
- Q.3**
- (a) Explain the following methods of Bacterial Count in detail: **06**
    - 1. Plate Count Method
    - 2. Coulter Counter method
  - (b) Differentiate between Viable and Total count, Direct and Indirect count methods. Enumerate methods of total and viable count of bacteria. **05**
  - (c) What is the scope of microbiology in the field of Pharmacy **05**
- Q.4**
- (a) Classify microorganisms based on their nutritional , temperature and oxygen requirements **06**
  - (b) Describe the structures external to the cell wall of bacteria with a suitable diagram along with their functions. **05**
  - (c) Discuss in detail the structure, chemical composition and importance of spores. Draw the cycle of endospore formation. **05**

**06**

- Q.5** (a) Explain in brief methods of isolation of bacteria. **05**  
(b) Discuss the following Staining methods in brief:  
1. Gram Staining  
2. Acid fast Staining  
(c) Discuss in brief the construction and working of an electron microscope **05**
- Q. 6** (a) Which products are required to be tested for sterility? Explain the principle of sterility testing. Which micro organisms are detected in sterility testing and which media is recommended in IP for sterility testing? **06**  
(b) Describe in brief the Direct inoculation method of sterility testing along with the interpretation of results at the end of the test **05**  
(c) Explain the Growth Promotion test with reference to Sterility testing as per IP. **05**
- Q. 7** (a) Discuss in brief the one level assay method for microbial assay of antibiotics as per IP. **06**  
(b) Name the Microorganisms used for the assay of the following: **05**  
1. Streptomycin  
2. Bacitracin  
3. Chloramphenicol  
4. Calcium Pentothenate  
5. Erythromycin  
(c) Explain the following with suitable examples: **05**  
1. Selective media  
2. Differential media

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