

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEM-III Examination-Dec.-2011

Subject code: 131302

Date: 24/12/2011

Subject Name: Environmental Microbiology

Time: 2.30 pm -5.00 pm

Total marks: 70

Instructions:

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

- Q.1 (a)** Give the classification of Bacteria based on its Morphology & Nutritional requirement **07**
- (b)** Define the terms: **07**
- (i) Disinfection (ii) Sterilization (iii) Pasteurization (iv) Lyophilization
(v) Chemolithotrophs (vi) Sanitizer (vii) Autotrophs.

- Q.2 (a)** Explain the importance of microbiology in the field of Environmental Engineering. **07**

- (b)** What is the role of algae in environment? Explain its beneficial and harmful effects. **07**

OR

- (b)** Give the clear difference between optical (light) microscope and electron microscope. With the help of neat path diagram of light passing through lens explain the working principle of bright field microscope. **07**

- Q.3 (a)** With the help of neat and labeled diagram enlist & explain the Internal and external parts of bacterial cell. **07**

- (b)** With the help of a neat sketch, explain the stages of typical bacterial growth curve. **07**

OR

- Q.3 (a)** Differentiate between Eucaryotic and Procaryotic cell giving at least seven points of difference. **07**

- (b)** Give the classification of Viruses based on morphology and host cell. **07**

- Q.4 (a)** With the help of neat sketch explain in detail the procedure for Standard Plate Count (SPC) test using serial dilution technique for milk. **07**

- (b)** Write a short note on “Lactic acid production “using microbes. **07**

OR

- Q.4 (a)** Explain the procedure to perform the Presumptive Test to estimate the MPN of water. Highlight the importance of MPN test in drinking water. **07**

- (b) What is pure culture? Enlist and explain the techniques for preservation of pure culture. **07**
- Q.5** (a) Prepare a list of different chemical agents for control of microbes. Explain Chlorine as an antimicrobial agent. **07**
- (b) What are the different physical agents for control of microbes? Explain the temperature as an antimicrobial agent. **07**
- OR**
- Q.5** Enlist the diseases caused by bacteria and viruses and explain the causes, symptoms, treatment and prevention of any two diseases. **14**
