

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE SEM-III Examination-Dec.-2011

Subject code: 131402

Date: 24/12/2011

Subject Name: Basic Food 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) Discuss the cell wall structure of gram +ve and gram –ve bacteria with respect to gram's staining. Write the procedure for gram's staining. **07**

(b) Discuss various physical methods(High Temperature, Low temperature and drying) used for control of microorganism for food preservation. **07**

Q.2 (a) Which is the most important mode of cell division in bacterial growth cycle? Define generation time and explain various phases of bacterial growth. **07**

(b) What is dye? Give its classification and discuss role of dyes in various studies of microbiology. **07**

OR

(b) (1)Write the contribution of following scientist in microbiology: **04**

(i) Antony van Leeuwenhoek (iii) Edward Jenner

(ii) Louis Pasteur (iv) Robert Koch

(2) Define following terms : **03**

(i) Anaerobe (ii) Streak culture (iii) Resolution

Q.3 (a) Discuss function of ingredients used for formulation of media for cultivation and differentiation of microorganism **07**

(b) Indicate structural changes in cell of *Clostridium* species during sporulation (endospore formation) using figure. **07**

OR

Q.3 (a) Draw internal and external structures within bacterial cell with proper label. **07**

(b) Explain symbiotic nitrogen fixation by *Rhizobium* bacteria with overall biochemical reactions. **07**

Q.4 (a) Discuss various methods used for isolation and cultivation of microorganism **07**

(b) Discuss techniques used for storage and preservation of microorganism in pure and active form. **07**

OR

- Q.4** (a) Classify the micro organisms based on their nutritional requirements for growth with suitable examples. **07**
(b) What are the changes during food spoilage by microorganisms? List various types of food spoilage along with causative organism? **07**

- Q.5** (a) Explain conjugation, transduction and transformation techniques of gene transfer for bacterial recombination. **07**
(b) Enlist various part and its functions used in light(Optical) microscope **07**

OR

- Q.5** (a) List and discuss various intrinsic and extrinsic parameters of food affecting microbial growth. **07**
(b) Differentiates between electron microscopy and light microscopy **07**
