

GUJARAT TECHNOLOGICAL UNIVERSITY**B.E. Sem-III [Food Processing Technology] Examination December 2009****Subject code: 131402****Date: 19 / 12 / 2009****Subject Name: Basic Food Microbiology****Time: 11.00 am – 1.30 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) What is bacterial spore? Draw schematic diagram of normal bacterial cell and bacterial spore. **07**
- (b) Explain bacterial transformation with figure. **04**
- (c) Give the difference between gram positive and gram negative bacteria. Give atleast four difference along with example of bacteria in each case. **03**

- Q.2** (a) Explain in detail various physical agents (Thermal and non thermal) to control growth of microorganisms. **07**
- (b) Write contribution of following scientists in the development of microbiology field: 1. Robert Hooke 2. Antony van Leeuwenhoek 3. John Tyndall 4. Edward Jenner. Give Pasture's contribution and Koch's Postulate in detail. **07**

OR

- (b) What is the use of staining? Explain various staining techniques in detail. Give the definition of dye and brief about various types of dyes. **07**

- Q.3** (a) Write short note on Fluorescent microscope with diagram. **06**
- (b) Give the classification of the micro organisms based on their nutritional requirement. **04**
- (c) Explain the role of condenser, ocular and objectives in compound microscope. **04**

OR

- Q.3** (a) What is antimicrobial agent? Write in detail various chemical agents used for controlling microorganisms in food plant along with their mode of action. **06**
- (b) What are flagella? Write its function and Classify the bacteria based on the flagellar arrangement. **04**
- (c) Differentiate between Prokaryotes and Eukaryotes giving atleast four difference. **04**

- Q.4** (a) Write in detail role of nitrogen fixing bacteria in soil. **05**
- (b) Explain in detail various types of media giving composition of any one media. **05**
- (c) Write functions of cell membrane and functions of major structures of cytoplasm. **04**

OR

- Q.4** (a) Classify bacteria based on requirement of oxygen and temperature for their growth. **05**
- (b) Define: 'D-value' and 'F-value'. Explain typical growth curve for bacteria along with figure. **05**
- (c) Write about various fermented milk products along with specific microorganisms used for preparation of them. **04**

- Q.5** (a) Define porin. What is its role in bacteria? Write in detail various transport systems of nutrients in bacteria. **06**
- (b) Give various colony characteristics on solid and liquid media. **04**
- (c) Explain mechanism of Gram's staining based on cell wall structure of bacteria. **04**
- OR**
- Q.5** (a) What is mutation? Explain types of mutation in detail. **06**
- (b) Explain spontaneous generation as against biogenesis with figure. **04**
- (c) Explain– Germ theory of disease. **04**
