

GUJARAT TECHNOLOGICAL UNIVERSITY**B.E. Sem-III Remedial Examination May 2011****Subject code: 131402****Subject Name: Basic Food Microbiology****Date: 25-05-2011****Time: 10.30 am – 01.00 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) Which protein is present in the filament of the flagella? Classify the bacteria based on the flagella arrangement. Draw flagella structure and explain it. **07**
- (b) List the energy sources and nutritional compounds requires for bacterial growth and Classify the bacteria based on the requirement of temperature and oxygen for their growth. **07**

- Q.2** (a) Write in detail regarding various phases of bacterial growth cycle with graph indicating various phases. **07**
- (b) Write functions of cell membrane and functions of major structures of cytoplasm. **07**

OR

- (b) Write the procedure and explain Gram's staining based on the bacterial cell wall structure in detail. **07**

- Q.3** (a) Explain in detail various physical agents used to control growth of microorganisms. **07**
- (b) Define Following terms: **07**
1. Resolving Power 2. Mutualism 3. D-value 4. Sterilization
5. Mutation 6. Sanitizer 7. Coliform

OR

- Q.3** (a) Brief regarding various taxonomic group and Whitaker's five kingdom concept. Differentiate between Procaryotic and Ucaryotic cells. **07**
- (b) Write contribution of following scientists: 1. Louis Pasture 2. Antony van Leeuwenhoek 3. Francesco Redi 4. Edward Jenner. Write in short about spontaneous generation along with Theodor Schwann's experiment disproving it and Koch's Postulate. **07**
- Q.4** (a) List various extrinsic and intrinsic parameters affecting growth of microorganisms in food and explain role of microorganisms in food. **07**
- (b) Write various methods for maintenance and preservation of pure cultures. List various types of mutation. **07**

OR

- Q.4** (a) Explain bacterial transformation with figure. **07**
- (b) Draw schematic diagram of compound microscope indicating each part along with the path of light. **07**

- Q.5 (a)** Which species of bacteria produces endospores? Indicate shape and location of endospore in bacterial cell and structural changes in the bacterial cell during sporulation with suitable diagram. **07**
- (b)** List various Modes of cell division in bacterial cell. List Various types of quantitative measurement of bacterial growth and explain various cell count methods. **07**

OR

- Q.5 (a)** List various chemical agents used for controlling growth of microorganisms Write in detail application of any three chemical agents. **07**
- (b)** Which bacteria are involved in nitrogen fixation? Write in detail nitrogen fixation in soil by bacteria. **07**
