

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-III • EXAMINATION – WINTER 2013

Subject Code: 131402**Date: 07-12-2013****Subject Name: Basic Food Microbiology****Time: 02.30 pm - 05.00 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) How bacterial cells are arranged in different manner and what are their shapes? **07**
Discuss in detail with example.

- (b)** Write short notes on **any two** of the following: **07**
- i. Binary fission
 - ii. Bacterial recombination
 - iii. Koch's Postulate

Q.2 (a) Explain Mechanism of Gram's Staining with the help of cell wall structure and gram's staining procedure step by step. **07**

- (b)** List down the various techniques that can be used for the preservation of microorganisms. **07**

OR

- (b)** Define the following terms: **07**
- | | |
|----------------------|---------------|
| i. Food microbiology | v. Microscope |
| ii. Generation time | vi. Autoclave |
| iii. Pure culture | vii. Pathogen |
| iv. Staining | |

Q.3 (a) State whether true or false rewrite the false statement after correction: **07**

- i. Drying can be used for the preservation of microorganisms.
- ii. Liquid nitrogen boils at -196°C .
- iii. Lyophilization is the other name for freeze drying.
- iv. Dry ice is the solid form of CO_2 .
- v. Log phase is also called as exponential phase.
- vi. Microbes that grow at low temperatures are called as psychrophiles.
- vii. Incubator is used to provide optimum temperature for microbial growth.

- (b)** Discuss various physical agents used to control microorganisms in detail. **07**

OR

Q.3 (a) Classify bacteria based on arrangement of Flagella. Discuss role of flagella and fimbriae. **07**

- (b)** List characteristics of an Ideal Chemical antimicrobial agent and discuss various chemical used for microbial control. **07**

Q.4 (a) Discuss role of microorganisms in nitrogen cycle of environment. **07**

- (b)** Define: Gene and Mutation. Explain various mutations in detail. **07**

OR

Q.4 (a) Differentiate between: **08**

1. Gram positive and Gram negative bacteria
2. Positive and negative staining
3. Prokaryotes and Eukaryotes
4. Vegetative cell and spores.

- (b) Discuss microorganisms of significance (Advantageous and Disadvantageous) in food in detail. **06**
- Q.5** (a) Explain microbial growth using growth curve and various growth phases. **07**
- (b) Classify microorganisms based on nutritional requirement and discuss various media used for cultivation of microorganisms. **07**
- OR**
- Q.5** (a) Which is the basic taxonomic group of microbes? Discuss major characteristics of Microorganisms in detail. **07**
- (b) How light and electron microscope differs from each other. List various Parts of compound light microscope with their function. **07**
