Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III • EXAMINATION – SUMMER • 2014

Subject Code: 131402 **Date: 04-06-2014**

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)**	Describe the significant contributions of Louis Pasteur in the field of Microbiology	**07**
	(b)	Describe the significance of microorganisms in foods.	**07**
Q.2	**(a)**	Enlist differences between prokaryotic and eukaryotic microorganisms	**07**
	(b)	Describe the steps of transfer of genetic material of bacteria through transduction. Also differentiate between specialized and generalized transduction.	**07**
		OR	
	(b)	What do you understand by bacterial sporulation? Draw the sporulation cycle and enlist 3 spore forming bacteria.	**07**
Q.3	**(a)**	Describe the streaking and plating methods for isolation and purification of microbial culture. What are the methods by which microbial cultures are maintained and preserved?	**07**
	(b)	Describe the growth phases of microbial growth. During which phases primary and secondary metabolites are produced?	**07**
		OR	
Q.3	**(a)**	Avery, Macleod and McCartney conducted an experiment to explain that DNA is the basis of genetic transformation. Draw a schematic diagram to depict the experiment performed by them.	**07**
	(b)	Describe various chemical and physical methods to control microorganisms	**07**
Q.4	**(a)**	Explain the following terms: (i) F' (ii) ELISA (iii) Dimorphic fungi	**06**
	(b)	What is meant by differential staining? Explain the concept and procedure of any one example of differential staining.	**04**
	(c)	Draw a schematic diagram to explain Koch Postulates.	**04**
		OR	
Q.4	**(a)**	Explain the following terms: (i) Hfr (ii) Specialized transduction (iii) western blotting	**06**
	(b)	Describe different types of growth media (with examples) used for the growth of microorganisms	**04**
	(c)	Describe how the concept of variolation was introduced across Europe.	**04**
Q.5	**(a)**	What is the generation time of a bacterial population that increases from 10^4 cells to 10^7 cells in 240 minutes of growth?	**06**
	(b)	Explain a biochemical test used to identify the microbial beta-galactosidase activity.	**04**
	(c)	Describe the categorization of microorganisms based on requirement of oxygen	**04**
		OR	
Q.5	**(a)**	A culture contains 4096 cells. How many cells did that culture contain five generations earlier?	**06**
	(b)	Explain how members of enterobacteriaceae are identified using IMViC Tests	**04**
	(c)	Describe the significance of D value and Z value	**04**

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