

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III (NEW) EXAMINATION – SUMMER 2019****Subject Code: 2131407****Date: 07/06/2019****Subject Name: Basic Food Microbiology****Time: 02:30 PM TO 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.
4. Draw diagrams wherever necessary.
5. Write scientific names as per the norms

		MARKS
Q.1	(a) Draw a flowchart to depict the scheme of five kingdom classification based on characteristics.	03
	(b) Justify why Robert Koch is also known as Father of Modern bacteriology	04
	(c) Describe the difference between gram +ve and gram –ve bacteria. Give example of gram +ve rod, gram +ve cocci, gram –ve rod, gram –ve cocci	07
Q.2	(a) Write a short note on chemical and physical methods to control microorganisms	03
	(b) Microbial growth occurs is observed as sigmoidal curve. Describe each phase of the sigmoidal curve. During which phase the primary metabolites are formed?	04
	(c) Describe the difference between eukaryotic and prokaryotic cell	07
	OR	
	(c) Justify the statement “Louis Pasteur is aptly known as Father of Microbiology	07
Q.3	(a) An apple pie sample contained 10000 cells of <i>S. aureus</i> . And it was kept at room temperature for 4 hrs. What would be the generation time if the final no. of cells is 6.5×10^8 .	03
	(b) Explain Redi's, Needham's and Spallanzani's experiments. Which scientist favored concept of biogenesis	04
	(c) Using a schematic diagram, describe the steps of western blotting technique. For which substance, northern blotting is used?	07
	OR	
Q.3	(a) Draw a diagram to depict procedure of gram staining	03
	(b) Draw a flowchart to depict the health benefits rendered by probiotics. Give examples for the probiotics which render health benefit in large intestine and small intestine	04
	(c) Describe PCR, its applications, advantages and disadvantages. Draw a diagram to depict PCR cycle and enlist the ingredients used for PCR	07

- Q.4** (a) Describe steps of bacterial DNA exchange by conjugation using a well labeled diagram. Also write about the significance of HFr and F' **03**
(b) Describe morphology of bacteria and conventions followed for nomenclature of microorganisms **04**
(c) Bacteria change from non-pathogenic strain to pathogenic strain. Explain the concept with experiment conducted by Griffith. Also suggest an application in reference to food industry. **07**

OR

- Q.4** (a) Draw a diagram to depict parts of compound bright field microscope. Why immersion oil is necessary while using 100X objective? **03**
(b) Draw a diagram to depict Holliday junction. How does it helps in evolution? **04**
(c) Draw A diagram to depict lysogenic and lytic phases of transduction. Explain the concept of Specialized transduction. **07**

- Q.5** (a) What is direct and indirect ELISA and list down applications. **03**
(b) Write a short note on contribution of Lady Mary Wortley Montagu in the field of immunology **04**
(c) Explain the concept of IMViC test used for differentiating enteric bacteria **07**

OR

- Q.5** (a) If 220 colonies were obtained on a given plate which was prepared by pour plating with 7th dilution, determine the microbial count in terms of log cfu/ml **03**
(b) Explain the role of intrinsic and extrinsic factors which affect the microbial load in foods **04**
(c) Justify how moist heat is better option for sterilization than dry heat. Explain the terms antiseptic, aseptic, sanitization, sterilization. **07**
