Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER IV (NEW) – EXAMINATION – SUMMER - 2017

Subject Code: 2741801 **Date: 03/05/2017**

Subject Name: Anaerobic Biotechnologies

Time:02:30PM-05:00PM **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)**	Write the difference between High Rate and Low Rate Anaerobic Treatment. Write detail classification of High Rate Anaerobic Reactors.	**07**
	(b)	Write a short note on Upflow Anaerobic Sludge Blanket Reactor with a neat sketch.	**07**
Q.2	**(a)**	Explain role of acid forming and methane forming bacteria in anaerobic treatment.	**07**
	(b)	Explain following environmental requirements for anaerobic treatment: (i) Temperature (ii) C/N ratio	**07**
		OR	
	(b)	What is the importance of alkalinity in anaerobic processes? How will you control alkalinity for anaerobic process?	**07**
Q.3	**(a)**	Write a short note on application of BMP test.	**07**
	(b)	Explain the procedure of BMP test.	**07**
		OR	
Q.3	**(a)**	Write a short note on Anaerobic Toxicity Assay test.	**07**
	(b)	Enlist the different treatability parameters for anaerobic treatment and explain in detail.	**07**
Q.4	**(a)**	Explain following environmental requirements for anaerobic treatment: (i) Nutrient content (ii) Presence of toxic substances	**07**
	(b)	Justify the statement : "1 Kg COD stabilized produces 0.35 m^3 methane at STP"	**07**
		OR	
Q.4	**(a)**	Enlist the parameters indicating the unbalanced condition in anaerobic reactors. Explain any one.	**07**
	(b)	Write a short note on Stuck reactor. Enlist and explain the steps to be taken for their correction.	**07**
Q.5	**(a)**	Differentiate between Expanded Bed Reactor and Fluidized Bed Reactor.	**07**

	(b)	Give the difference between Upflow Anaerobic filter and downflow anaerobic filter.	**07**

OR

Q.5	**(a)**	Explain the pH based biphasic anaerobic digestion	**07**
	(b)	Why is mixing necessary in anaerobic digestion? Enlist the methods used for mixing in anaerobic digester.	**07**

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