

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-IV(New) • EXAMINATION – WINTER 2016****Subject Code:2143503****Date:22/11/2016****Subject Name:Environmental Bioscience****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.

		MARKS
<b>Q.1</b>	Define the followings:	<b>14</b>
	1 Carbohydrates	
	2 Sterilization	
	3 Culture media	
	4 Contamination	
	5 Amino acid	
	6 Water pollution	
	7 Enzyme kinetics	
	8 Microorganism	
	9 Aerobic microorganism	
	10 Metabolism	
	11 Nitrification	
	12 Autotrophic bacteria	
	13 Algae	
	14 Photosynthesis	
<b>Q.2</b>	(a) Discuss the microbiology of soil.	<b>03</b>
	(b) What is gram staining? Discuss the classification of staining technique.	<b>04</b>
	(c) What do you understand by biological treatment of wastewater? Discuss the biological process involves in wastewater treatment.	<b>07</b>
	<b>OR</b>	
	(c) Discuss the primary and structure of protein in brief.	<b>07</b>
<b>Q.3</b>	(a) Discuss the microbiology of air.	<b>03</b>
	(b) Define the term cell and discuss its classification.	<b>04</b>
	(c) Discuss the classification of microorganism in details.	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) Enlist the name of any ten amino acid with their symbol.	<b>03</b>
	(b) Enlist cell constituent and their functions.	<b>04</b>
	(c) Briefly discuss the anaerobic metabolism and its functions.	<b>07</b>
<b>Q.4</b>	(a) Write down the various role of amino acids.	<b>03</b>
	(b) Discuss the various structural levels of proteins.	<b>04</b>
	(c) Discuss the working principle of bioscrubber.	<b>07</b>
	<b>OR</b>	
<b>Q.4</b>	(a) Write down the various role of proteins.	<b>03</b>
	(b) Define the enzyme. Discuss their role in pollution control system.	<b>04</b>

(c) Write down the application of biotechnology in pollution control system and process. **07**

**Q.5** (a) Write short notes on bio filters. **03**

(b) Discuss the microbial growth curve in brief. **04**

(c) What do you understand by bioremediation? How bio scrubbers useful in pollution control. Discuss in brief. **07**

**OR**

**Q.5** (a) Write short notes on isolation technique of microorganism. **03**

(b) Discuss the bacteria and algae as a microbial flora of soil. **04**

(c) What is Biogas? How it can be produce from waste. Discuss various steps involved in biogas production. **07**

\*\*\*\*\*