

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-IV (New) EXAMINATION – WINTER 2015

Subject Code:2143503**Date:30/12/2015****Subject Name: Environmental Bioscience****Time: 02:30pm to 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) What is the role of enzymes in pollution control? Describe their classification and nomenclature. **07**
- (b) How can microbes help in environment? Give the brief introduction on bacteria, algae. **07**
- Q.2** (a) How the bio scrubbers and bio filters play an important role in secondary treatment. Explain briefly. **07**
- (b) Define Soil? Discuss the physical characteristics of soil with neat and clean schematic diagram. **07**
- OR**
- (b) What is lipid? Give its structure, classification and functions. **07**
- Q.3** (a) What is protein? Give its structure, classification and functions. **07**
- (b) What is amino acid? Give its structure and classification. **07**
- OR**
- Q.3** (a) What is the composition of biogas? Write down the process and steps involved in biogas production. **07**
- (b) Briefly discuss bio molecules and its type. **07**
- Q.4** (a) What is the microbial growth curve? Explain different phases of growth curve. **07**
- (b) Define microorganisms & microbiology? Briefly discuss important events (at least five) leading to environmental microbiology. **07**
- OR**
- Q.4** (a) Define bacteriological media. What nutritional requirement in terms of chemicals is needed by all the forms of life for growth and cellular maintenance? Explain briefly. **07**
- (b) Draw a suitable diagram of WTPs and ETPs. How the ETPs is different from CETP. Explain it briefly with various treatment steps. **07**
- Q.5** (a) Define cell. What are the types of cell? Explain briefly with suitable diagram. **07**
- (b) What is bioremediation? Explain treatment of waterwater through microbial bioremediation. **07**

OR

- Q.5** (a) Explain the term biotechnology. How biotechnology is applicable in chemical industry and in environmental engineering? **07**
- (b) Write short notes on: **07**
- i) Culture media **02**
 - ii) Gram staining **02**
 - iii) Aerobic, Anaerobic and facultative bacteria **03**
