

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-IV • EXAMINATION – WINTER • 2014****Subject Code: 143503****Date: 31-12-2014****Subject Name: Environmental Bioscience****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) List and describe briefly the major kind of microbial characteristics & classification. **07**
- (b) How can microbes help in environment? Give the brief introduction on bacteria, algae and enzyme. **07**
- Q.2** (a) What are the functions of lipid, proteins and carbohydrate? **07**
- (b) What do you mean by plasmids? Give classification and properties of plasmids. **07**
- OR**
- (b) What is amino acid? Give its structure and classification. **07**
- Q.3** (a) What are proteins? Write its classification and structure. **07**
- (b) Describe how the physical composition of soil influences the magnitude and diversity of microbial flora? **07**
- OR**
- Q.3** (a) Explain all three types of enzyme inhibition. **07**
- (b) What is the microbial growth curve? Explain different phases of growth curve. **07**
- Q.4** (a) Write the process of Transcription & Translation (Biosynthesis of RNA). **07**
- (b) Give the nomenclature and classification of enzymes. Explain the properties of enzymes. **07**
- OR**
- Q.4** (a) Explain the Replication of DNA (Biosynthesis of DNA). **07**
- (b) What are enzymes? Explain the lock and key model. (Fischer's Template Theory). **07**
- Q.5** (a) Where are septic tanks used? Describe the microbiological activities that take place in a septic tank. **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) What is biogas? Which conditions are required for biogas production? How is biogas produced from waste water? **07**

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