

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III • EXAMINATION – WINTER • 2014

Subject Code: 2131302

Date: 01-01-2015

Subject Name: Environmental Microbiology and Bioremediation

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) Discuss the differences between prokaryotic and eukaryotic cells **07**
(b) Enlist the major characteristics of microorganisms and explain any two in brief **07**
- Q.2** (a) Define: numerical aperture, limit of resolution, magnification, fluorescence **07**
(b) Name the staining techniques used in microbiology along with the applications **07**
- OR**
- (b) Compare different types of microscopy **07**
- Q.3** (a) Explain with a sketch: bacterial growth curve **07**
(b) Give the classification of Viruses based on morphology and structure **07**
- OR**
- Q.3** (a) Draw a typical bacterial cell and identify all parts. **07**
(b) Explain the generalized scheme of microbial degradation of the organic constituents in sewage **07**
- Q.4** (a) Write a short note: Products of industrial fermentation **07**
(b) Enlist the diseases caused by bacteria and explain the symptoms, treatment and prevention of any one in detail. **07**
- OR**
- Q.4** (a) Enlist the major groups of chemical antimicrobial agents. Explain practical applications and mode of action of any one in detail **07**
(b) Write a short note: HEPA filters **07**
- Q.5** (a) Explain the role of microbes in bioremediation **07**
(b) Enlist advantages and disadvantages of bioremediation **07**
- OR**
- Q.5** (a) What is MPN? Explain in detail **07**
(b) Write a short note: Ex-situ bioremediation of soil **07**
