

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER- III (New) EXAMINATION – WINTER 2019****Subject Code: 2131302****Date: 30/11/2019****Subject Name: Environmental Microbiology & Bioremediation****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.

- Q.1** (a) Explain the importance of microbiology in the field of environmental engineering. **03**
(b) Name the staining techniques used in microbiology. Explain gram staining in detail. **04**
(c) Differentiate between: Prokaryotic Cell & Eukaryotic Cell. **07**
- Q.2** (a) Give the classification of various types of culture media. **03**
(b) Draw the Bacterial Growth Curve and explain about each stage. **04**
(c) Write a short not on Physical agents for the control of microbes. **07**
- OR**
- (c) Write a short not on Chemical agents for the control of microbes. **07**
- Q.3** (a) Give the classification of fungi. **03**
(b) Explain different parts of bacterial cell. **04**
(c) Prepare a list of water borne disease & Explain any one with its causes, symptoms & preventive measures. **07**
- OR**
- Q.3** (a) Give the classification of bacteria. **03**
(b) Differentiate between Plant Cell and Animal Cell. **04**
(c) Write a note on disease Malaria highlighting the causes, symptoms, treatment & prevention. **07**
- Q.4** (a) Give the advantages and disadvantages of Bioremediation. **03**
(b) List out the diff. techniques used for the preservation of pure culture and explain Lyophilization. **04**
(c) Explain the SPC test of milk using serial dilution techniques. **07**
- OR**
- Q.4** (a) Give the difference between In-Situ & Ex-Situ Bioremediation. **03**
(b) List out various culture methods used in microbiology and explain the streak plate method. **04**
(c) Explain the complete procedure to perform MPN test for water. **07**
- Q.5** (a) Explain: (i) Decomposer (ii) Resolving Power (iii) Sterilization **03**
(b) Give the classification of Microscopes. **04**
(c) Explain the procedure for production of Lactic Acid. **07**
- OR**
- Q.5** (a) Explain: (i) Pure Culture (ii) Numerical Aparture (iii) Pasteurization **03**
(b) Differentiate between: Light Microscope & Electron Microscope. **04**
(c) Explain the procedure for production of Vinegar. **07**
