

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

Subject Code:2131302**Date:23/12/2015****Subject Name: Environmental Microbiology & Bioremediation****Time: 2:30pm to 5:00pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

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| Q.1 | Short Questions | 14 |
| | 1 Define Microbiology. | |
| | 2 What is Environmental Microbiology? | |
| | 3 Give classification of Microorganisms. | |
| | 4 Define Prokaryotic organism. | |
| | 5 Define Eukaryotic organism. | |
| | 6 Write one main characteristic of Bacteria. | |
| | 7 Write one main characteristic of Fungi. | |
| | 8 Write one main characteristic of Virus. | |
| | 9 Write one main characteristic of Algae. | |
| | 10 What is Log phase in Bacterial growth? | |
| | 11 What is Pure culture? | |
| | 12 What is Sterilization? | |
| | 13 What is Disinfection? | |
| | 14 Define Bioremediation. | |
| Q.2 | (a) Enlist methods of isolation of Pure culture. | 03 |
| | (b) Draw neat sketch of Bacterial cell. | 04 |
| | (c) Draw neat sketch and explain working principle of Bright field Microscope. | 07 |
| | OR | |
| | (c) Write a short note on Vinegar production using microbes. | 07 |
| Q.3 | (a) Enlist chemical compounds for Disinfection. | 03 |
| | (b) Differentiate between Prokaryotes and Eukaryotes. | 04 |
| | (c) Give the classification of Protozoa and explain any one type in detail. | 07 |
| | OR | |
| Q.3 | (a) What is Eutrophication? | 03 |
| | (b) What is significance of MPN test for water? | 04 |
| | (c) Explain the types of Viruses with sketches. | 07 |
| Q.4 | (a) Enlist various diseases caused by Microorganisms. | 03 |
| | (b) Enlist the beneficial and harmful effects of Fungi on environment? | 04 |
| | (c) Enlist and explain physical and chemical agents for control of Microbes. | 07 |
| | OR | |
| Q.4 | (a) Enlist factors affecting antimicrobial action? | 03 |
| | (b) What is the importance of microbiology in Environmental engineering field? | 04 |
| | (c) Write a short note on role of microbes in Industry and Food. | 07 |
| Q.5 | (a) What is Ex-situ Bioremediation? | 03 |
| | (b) Enlist the beneficial and harmful effects of Algae on environment? | 04 |
| | (c) Write a short note on role of microbes in Bioremediation. | 07 |

OR

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|------------|------------|--|-----------|
| Q.5 | (a) | What is In-situ Bioremediation? | 03 |
| | (b) | Write a brief note on “History of Microbiology”. | 04 |
| | (c) | Write the causes, symptoms, treatment and prevention of any one disease. | 07 |
