

GUJARAT TECHNOLOGICAL UNIVERSITY

M.SC. INDUSTRIAL BIOTECHNOLOGY SEM.- 3 • EXAMINATION – WIINTER - 2022

Subject Code:1330102

Date: 21 Dec 2022

Subject Name:Environmental Biotechnology

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.
4. Draw neat and clean diagrams as required

Q.1 Write a note on following

**(Marks-
10X2=20)**

1. Give an example of any two free living nitrogen fixing anaerobic bacteria.
2. Give an example of any two phosphate-solubilizing fungi.
3. Give an example of any two dye-degrading bacteria.
4. Define BOD and COD.
5. What is composting?
6. Give the basic difference between *in situ* and *ex situ* Bioremediation.
7. Define biosorption.
8. Define taxonomic rank.
9. Define food web.
10. Define phylogenetic classification

Q.2 Answer the following (Any 2 out of 3)

**(Marks-
2X10=20)**

1. Discuss the role of PGPR in the improvement of plant growth.
2. Discuss symbiotic and non-symbiotic nitrogen fixation in detail.
3. Write a detailed note on bioleaching. Discuss bioleaching with any two examples.

Q.3 Answer the following (Any 6 out of 8)

**(Marks-
6X5=30)**

1. Write a brief note on numerical taxonomy.
2. Discuss the interaction between microbes and animals. Explain its importance in the ecosystem.
3. Write a short note on ozone depletion.
4. Environmental laws and policies in India.
5. Short note on global warming.
6. Write a short note on the phosphorous cycle.
7. Give advantages and disadvantages of phosphate solubilizing biofertilizer.
8. Discuss the use of Genetical Engineered bacteria for Bioremediation with an example.
