

GUJARAT TECHNOLOGICAL UNIVERSITY

M.SC. INDUSTRIAL BIOTECHNOLOGY(IB) - SEMESTER - 1 EXAMINATION - WINTER - 2024

Subject Code:1310102

Date: 26 Dec 2024

Subject Name: Industrial Microbiology

Time:10:30 AM TO 01:00 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. Application of MALDI-TOF
2. Cryopreservation
3. Draw a labelled diagram of liquid fermenter
4. Cyanobacteria
5. Give 4 examples of Substrates for solid state fermentation
6. Airlift bioreactor
7. Advantages of enzyme immobilization over free enzymes
8. Explain mutagenesis for strain improvement
9. Halophiles
10. Define inoculum

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

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

1. Optimization strategy for improvement of fermentation process.
2. Write in detail on enzyme immobilization .
3. Describe the advantages and disadvantages of Solid state fermenters.

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

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

1. Write the factors considered for designing a fermenter.
2. Write a short note on Lyophilization technique for preservation of microorganisms.
3. Describe two classical methods of microbial strain improvement and provide an example for each.
4. Write a note on Bacterial Growth curve.
5. Write a note on gel microdrops.
6. Write a note on isolation and screening of actinomycetes.
7. Describe in detail the major components of fermentation media.
8. Isolation of Thermophiles and its applications
