Exam.Code:0004
Sub. Code: 0377

2053

B.A./B.Sc. (General) Fourth Semester
Industrial Microbiology (Elective)
IMB-402: Microbial Technology

Time allowed: 3 Hours

Max. Marks: 33

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting one question from each Unit.

x-x-x

1. Answer the following briefly:
   a) Principle of Ion exchange chromatography.
   b) Submerged fermentation
   c) Cryopreservation
   d) Nitrogen substrates in fermentation media
   e) Impeller and its function. (5x1=5)

UNIT-I

2.a) Which microbes are commonly used in industrial processes? Explain their characteristics and importance in industrial biotechnology.
   b) Describe the lyophilization method for the preservation of microbes. Give its advantages and disadvantages as well. (7)

3.a) Explain the methods of isolation of industrial important microbes.
   b) Why it's important to preserve the culture of industrial importance? Describe any two methods of preservation of microbes. (7)

UNIT-II

4.a) What do you about the formulation of media for industrial processes? Give the characteristics of an ideal media.
   b) Describe the various methods of cell disruption for the recovery of the product. (7)

5.a) Schematically explain the steps for the downstream processing of proteins.
   b) What is continuous culture? How its kinetics of growth differs from batch culture? (7)

UNIT-III

6.a) Give an overview of quality control of industrial products.
   b) Describe the process of Penicillin production and the medium and the microbe involved in the production process. (7)

7.a) How is the production of Glutamic acid carried out at the industrial level?
   b) Write in detail about the production of acetic acid by the Orleans process. (7)

UNIT-IV

8.a) With suitable examples explain the bioleaching of metals and the microbes applied for the purpose.
   b) Which materials are more susceptible to biodeterioration? Discuss the bio-deterioration of wood and paper. (7)

9.a) Describe the role of microbes in the enhanced recovery of mineral resources.
   b) Explain the biodeterioration of textiles and metals with suitable examples. (7)

x-x-x