Exam.Code:0004
Sub. Code: 0377

2062

B.A./B.Sc. (General) Fourth Semester

Industrial Microbiology (Elective)

IMB-402: Microbial Technology

Time allowed: 3 Hours

Max. Marks: 33

NOTE: *Attempt <u>five</u> 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) Depth filters
   b) Pure culture isolation
   c) Waterflooding
   d) Thermal
   e) Koji process

(1x5=5)

UNIT-I

2.a) Give an introduction of microbial processes in industrial Biotechnology.
   b) Describe the methods of maintenance of industrially important microbes. (2x3 ½=7)

3.a) What are the common methods of preservation of fungi? Explain.
   b) How primary and secondary screening is helpful in selection of desired culture? Explain with examples. (2x3 ½=7)

UNIT-II

4.a) Fermentation industry can not work without microbes". Give reasons to justify this statement.
   b) Describe the role of physical and chemical factors for the successful fermentation process. (2x3 ½=7)

5.a) Draw the flow chart of downstream process for an antibiotic and its recovery.
   b) Describe the growth kinetics of microbial culture in a batch reactor. (2x3 ½=7)

UNIT- III

6.a) What is the Culture Media for glutamic acid fermentation? Describe the glutamic acid production by fermentation.
   b) What are the sources of carbon and nitrogen in vitamin B12 fermentation? How is vitamin B12 synthesized commercially using microbes? (2x3 ½=7)

7.a) What are pharmaceutical products? Describe the production process of any one product which you have studied,
   b) Discuss the fermentation methods for the production of acetic acid. (2x3 ½=7)

UNIT-IV

8.a) What is bioleaching ? What are the most common commercial bioleaching processes?
   b) Discuss the role of microbes with examples in recovery of minerals. What are the benefits of enhanced recovery? (2x3 ½=7)

9. Write in detail about the biodeterioration of:
   i) Paper and wood ii) Metals and paints (2x3 ½=7)

x-x-x