

## E 293

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2003.

Third Semester

Industrial Biotechnology

IB 237 — BASIC INDUSTRIAL BIOTECHNOLOGY

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Write a brief note on any two factors affecting the cost of a fermentation process.
2. Describe two processes employing the principle of diffusion.
3. What is Millard reaction? Discuss its significance for a fermentation industry.
4. Why mouse is a useful experimental animal model?
5. Name any two organisms useful in leaching metals.
6. Name any two significant milestones in the history of biotechnology.
7. What is amphibolic pathway? Give one example.
8. What are the precursors used in the production of penicillin G and penicillin V?
9. What are biofertilizers?
10. Name and discuss any one of the advantages and disadvantages in using whey as an industrial raw material.

PART B — (5 × 16 = 80 marks)

11. In a bioprocess industry, identify operations where steam is used.
12. (a) What is multiple cropping? How it helps in pest management? What are some newer approaches to pest management in agriculture?

Or

- (b) Distinguish between enrichment and screening techniques for obtaining industrially useful microorganisms. Give suitable examples.
13. (a) Describe giving details any two industrial products produced using enzymes.

Or

- (b) How can animals be used as factories?
14. (a) Describe the operations in a municipal waste treatment plant. What is the preferred treatment process for high BOD wastes?

Or

- (b) Discuss any four parameters targeted for improvement in a biochemical process industry.
15. (a) Write a note on extensive culture system, with two examples to illustrate its features.

Or

- (b) Give any two mechanisms facilitating ingredient interaction in a bioreactor, with sketch of atleast two examples in each case.