Reg. No. : | | | | | | | | | | |

R 3118

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2007.

Fourth Semester

Biotechnology

BT 1251 — BASIC INDUSTRIAL BIOTECHNOLOGY

(Regulation 2004)

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. What is Millard reaction? Discuss its significance for a fermentation industry.

3. Identify the biotechnology product having phenylalanine and aspartic acid as major component.

4. What are the precursors used in the production of penicillin G and pencillin V?

5. Name and discuss any one of the advantages and disadvantages in using whey as an industrial raw material.

6. What are secondary metabolites?

7. How monoclonal antibodies are useful as a purification tool?

8. Name two products resulting from recombinant DNA technology.

9. How air may be sterilized for industrial applications?

10. Name any two organisms used in lactic acid fermentation.

PART B — (5 × 16 = 80 marks)

11. (a) Discuss any four parameters targeted for improvement in a biochemical process industry.

Or

(b) (i) In bioprocess industry, identify the operations where steam is used.

(ii) Distinguish between enrichment and screening techniques for obtaining industrially useful microorganisms. Give suitable examples.

12. (a) Name three acids produced by *Aspergillus* growing on glucose. How would you exploit this observation for commercial purpose?

Or

(b) How is industrial alcohol produced? What is the most important step in this process from a commercial perspective?

13. (a) There are three conventionally practiced processes for the manufacture of 6-aminopencillanic acid. Describe any two.

Or

(b) Give one example each of microbial conversion processes involving (i) oxidation, (ii) reduction, (iii) hydrolysis, and (iv) condensation.

14. (a) Describe giving details any two industrial products produced using enzymes.

Or

(b) Describe the method of production of any two of the industrial enzymes: penicillin acylase, lipase, protease.

15. (a) Describe any three methods for the production of vaccines.

Or

(b) What are biopharmaceuticals? Describe any two biopharmaceuticals of commercial importance, and the markets for which they have been developed.