

D 1593

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Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE EXAMINATION, NOVEMBER 2009

General Biotechnology

GBT 212—BIOPROCESS TECHNOLOGY

Time : Three Hours

Maximum : 80 Marks

Section A

Answer any two questions.

Each question carries 10 marks.

- 1. How the physico-chemical factors operating in a fermenter is monitored and controlled using instrumental devices ?**
 - 2. Narrate the various types of photobioreactors with suitable diagrams.**
 - 3. How streptomycin is produced industrially ? Focus on the steps in downstream processing.**
- (2 x 10 = 20 marks)**

Section B

Write briefly any ten of the following.

Each question carries 5 marks.

- 4. What are the industrial applications of whole cell immobilization ?**
- 5. What are the industrial sectors and the products where microbes are commercially exploited ?**
- 6. Discuss the choice and features of construction materials available for making bioreactors.**
- 7. What are the methods of sampling from a fermenter ?**
- 8. Write about three common valves used with various bioreactors.**
- 9. How the technique of "precipitation" is employed in product recovery ?**
- 10. Differentiate batch, fed-batch and continuous modes of fermentation systems.**
- 11. Brief the structure of Rotary vacuum filter.**
- 12. Brief the structure and functionality of Decanter Centrifuge.**
- 13. What are the chemical methods of cell disruption ?**
- 14. Comment on the utility of "Super critical fluid" extraction in certain product recovery processes.**
- 15. Brief the method of "contact drying" with the structure of applicable device.**

(10 x 5 = 50 marks)

Turn over

Section C

*Answer all questions.
Each question carries 2 marks.*

16. What is "continuous culture" ?
17. **Define** "'Thermal Death Time'".
18. How to isolate microorganisms capable of producing **antifungal** antibiotics ?
19. What is 'Metabolic flux analysis' ?
20. How aeration and agitation are interrelated ?

(5 x 2 = 10 marks)