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Question Paper Code: R3D03

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

Third Semester

Biotechnology

R21UBT303 BASIC INDUSTRIAL BIOTECHNOLOGY

(Regulations R2021)

Duration: Three hours

Maximum: 100 Marks

Answer All Questions

PART A - (10x 2 = 20 Marks)

1. Justify the statement, "The production of idly batter, wine and curd is similar". CO1 U
2. Draw a diagram to show the stages of microbial development in a batch culture CO1 U
3. Illustrate the bio-parameters for Monosodium glutamate production CO3 App
4. Illustrate the production of citric acid with proper representations. CO3 App
5. How does Griseofulvin act as an antibiotic? CO1 U
6. Mention the significance of cephalosporin. CO1 U
7. Enlist 4 microbes in household products. CO1 U
8. Mention the significance of lipases CO1 U
9. List four recombinant proteins. CO1 U
10. What are immunoglobulins? Give example. CO1 U

PART – B (5 x 16= 80 Marks)

11. (a) Draw a process flow sheet to illustrate how the production of bioethanol might be improved. CO1 U (16)
- Or
- (b) Explain in detail the steps involved in upstream processing with an example CO1 U (16)

12. (a) Explain the production process of Glutamic acid by drawing a process flow sheet. CO1 U (16)
- Or
- (b) Give a thorough explanation of the acetic acid production process using clear flow diagrams. CO1 U (16)
13. (a) Explain the upstream and downstream processing of erythromycin with the help of a flow sheet. CO1 U (16)
- Or
- (b) Write note on β -lactam antibiotics. Describe the fermentation of β -lactam antibiotics along with the bio parameters to be controlled. CO1 U (16)
14. (a) Demonstrate in detail the Industrial production of Enzyme of your interest and write in detail the commercial applications of the same. CO2 App (16)
- Or
- (b) Demonstrate on the biosynthesis of bio pesticides and bio fertilizers (production formulation) with the help of a flow chart. CO2 App (16)
15. (a) Animal cell cultures are used to generate valuable products based on their own genetic information or due to genes transferred into them (transgenes) using rDNA technology. Illustrate the various products of Animal cell culture. CO3 App (16)
- Or
- (b) Therapeutic antibodies have become the predominant class of new drugs developed in recent years. Outline the experimental procedure for the production of monoclonal antibodies. CO3 App (16)