Exam.Code:0038
Sub. Code: 0988

1058

B.Sc. (Hons.) Biotechnology
Sixth Semester
BIOT- Sem-VI-II-T: Bioprocess Engineering and Technology

Time allowed: 3 Hours Max. Marks: 67

***NOTE**: Attempt five questions in all, including Question No. I which is compulsory and selecting one question from each Unit.*

x-x-x

I. Write short answers of the following:-

a) Yield Coefficient
b) In-Situ sterilization
c) Growth rate
d) Antifoam agents
e) Effluent
f) Depth filters
g) Aseptic operation
h) Sparger
i) Sigmoidal curve
j) Media (10x1½)

UNIT – I

II. a) How the sterilization of air is done for fermentation processes?
b) How will you design batch sterilization process? (2x6½)

III. a) Which factors affect the sterilization cycle. Discuss.
b) Give a comparison of biochemical engineering and bioprocess technology. (2x6½)

UNIT – II

IV. a) What do you know about the growth kinetics of continuous fermentation?
b) Explain the typical growth kinetics of bacteria in a batch process. (2x6½)

V. a) How physical and chemical parameters affect the metabolism and biomass Productivities in a fermenter.

b) Define Del factor. How it is calculated? Give its significance. (2x6½)

P.T.O.

UNIT – III

VI. a) What are the types of control and measurement system in afermenter? Explain.

b) Describe the structure of impeller and its functions. (2x6½)

VII. a) Why sparger is required in the fermenter? Describe the structure of DO probe and sparger.

b) What are the main requisite for designing the fermenter. (2x6½)

UNIT – IV

VIII. a) Which methods are used commercially for cell disruption to recover the product?

b) Explain biological treatment methods of industrial waste water. (2x6½)

IX. a) What do you know about centrifugation and industrial centrifuges?

b) Write a note on the filtration process and the industrial filters. (2x6½)

x-x-x