Exam.Code:0038
Sub. Code: 0988

2061

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. Answer the following:-

a) What is Del factor?

b) What is dilution rate in continuous culture

c) What is the basic principle of Flocculation?

d) What is primary waste water treatment?

e) What is Liquid-liquid extraction?

f) What is Yield coefficient of a fermentation process?

g) Give function of baffles.

h) What is growth medium?

i) Define chemostat.

j) What is doubling time? (10x1½)

UNIT - I

II. a) Define biochemical engineering and discuss its scope for large scale production of fermentation product.

b) What types of reactions contribute to loss of nutrient quality during sterilization? (7,6)

III. a) Describe design of batch sterilization processes.

b) What is air filtration and how microbes are related to the depth of filter? (7,6)

UNIT - II

IV. a) Discuss the process of batch fermentation and its associated growth kinetics.

b) Explain effect of temperature on product formation.

c) Explain biomass productivities. (7,3,3)

P.T.O.

V. a) Describe microbial growth kinetics for continuous culture.

b) Explain the internal and external feedback system for chemostat. (7,6)

UNIT - III

VI. a) Describe aeration system with different types of spargers in fermenter.

b) Explain different valves which are involve for ON/OFF applications. (6,7)

VII. a) Draw well labeled diagram of fermenter. Discuss various component of fermenter.

b) Discuss role of pH and DO in fermenter. (8,5)

UNIT - IV

VIII. a) Explain various cell separations methods in down streaming process.

b) Explain secondary activated sludge process for treatment of waste water. (7,6)

IX. Write note on:-

a) Whole broth process.

b) Super critical extraction

c) Aqueous two phase extraction system (4,5,4)

x-x-x