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R-3831-32

M. Sc. Biotechnology (Integrated)
(Sem. VII) Examination
May / June – 2010
Ens. - 704 : Bioprocess Technology - I

Time : **3** Hours] [Total Marks : **70**

R-3831

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ M. SC. BIOTECHNOLOGY (INTEGRATED) (SEM. 7)

Name of the Subject :

☛ ENS. - 704 : BIOPROCESS TECHNOLOGY - 1

☛ Subject Code No. : 3 8 3 1 ☛ Section No. (1, 2,.....) : 1

Seat No. :

Student's Signature

(2) Figures to the right indicate full marks of the question.
(3) Draw neat and labeled diagrams whenever necessary.
(4) Both sections must be written in **separate** answer books.

1 (a) Give the types of sparger used in fermentation design. **10**
(b) How will you formulated the production media?
(c) What is the effect of scale on Mass transfer?
(d) What is PID control? What is its significance?
(e) How will you determine volumetric mass transfer coefficient?

2 Answer any **two** of the following : **10**
(a) Describe the design and operational principle for CSTR.
(b) What mass transfer? Describe the biological heat transfer coefficients.
(c) Differentiate Adaptive control and predictive control.

3 Write short notes on : **15**
(a) Fluidized Bed reactor
(b) Sterilization of air
(c) Aeration and Agitation devices
(d) Strain improvement by gene manipulation.

R-3832

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Name of the Examination :

☛ M. SC. BIOTECHNOLOGY (INTEGRATED) (SEM. 7)

Name of the Subject :

☛ ENS. - 704 : BIOPROCESS TECHNOLOGY - 1

☛ Subject Code No. : 3 8 3 2 ☛ Section No. (1, 2,.....) : 2

Seat No. :

Student's Signature

(2) Figures to the right indicate full marks of the question.

(3) Draw neat and labelled diagrams whenever necessary.

(4) Both sections must be written in **separate** answer books.

4 (a) What is stages of product formation? Which are the techniques to increase its yield? **10**

(b) What are the effects of sterilization cost on the total final cost of product?

OR

(c) List the concentration methods used to maximize product yield and describe any **two** in detail. **10**

(d) List the chromatographic techniques used for purification of products and give its significance.

5 Answer anay two of the following : **10**

(a) Enlist the Electrochemical methods used for product recovery. Describe the electrodialysis in detail.

(b) List the purameters considered while deciding the product cost and give significance of each of them.

(c) Which are the devices used for aeration, agitation and to prevent vortex formation? What are their significance?

6 Write short notes on : **15**

(a) Flocculation Vs Precipitation as recovery processes.

(b) Cell integration and product recovery.

(c) Mass transfer of gases.

(d) Air lift fermenter.

(e) Electro phoresis as purification process.
