Code: 9A23502

R09

B.Tech III Year I Semester (R09) Supplementary Examinations June 2017
BIOCHEMICAL REACTION ENGINEERING - I
(Biotechnology)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1   (a)   Write on the temperature dependence of a chemical reaction.
    (b)   Explain Arrhenius equation.

2   (a)   Write about fundamental principles of bioreactors.
    (b)   Explain heat transfer configuration for bioreactors.

3   Briefly explain the following:
    (a)   Designing equation of PFR.
    (b)   Analysis of cascade of CSTRs.

4   Write short notes on:
    (a)   Chemostat.
    (b)   Death rate of cells in batch systems.

5   Explain the following:
    (a)   Effect of substrate concentration on growth rate.
    (b)   Thermal death kinetics.

6   Describe:
    (a)   Series reactions.
    (b)   Calculation of yield in multiple reactions.
    (c)   Product yield from biomass.

7   Explain about:
    (a)   Equilibrium conversion under adiabatic conditions.
    (b)   Design of the homogeneous reactors under adiabatic conditions.

8   (a)   What is a tracer? How it is selected.
    (b)   Summarize the tanks in series model for non ideal behavior.

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