

**R09****Code: 9A23502**

B.Tech III Year I Semester (R09) Supplementary Examinations December 2015

**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 Write short notes on the following:
  - (a) Rate constant.
  - (b) Molecularity.
  - (c) Rate of reaction.
  - (d) Order of the reaction.
- 2 Derive the performance equation for mixed flow reaction and also show the graphical representation.
- 3 In a batch reactor 80% reactant is converted in 8 min, 90% is converted in 18 min. Find a rate equation to represent the reaction ( $C_{A0} = 1 \text{ mole/lit}$ ).
- 4 Explain the growth kinetics of batch and continuous mode of reaction system.
- 5 Describe the types of inhibition kinetics.
- 6 Explain in detail about multiple reactions with its kinetics.
- 7 Describe the design of homogenous reactors in adiabatic condition with appropriate equation.
- 8 Discuss the reason of non-ideality with the help of simple diagrams.

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