R09

Code No: C5103

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.TECH I SEMESTER EXAMINATIONS, APRIL/MAY-2012
ADVANCED CHEMICAL REACTION ENGINEERING
(CHEMICAL ENGINEERING)

Time: 3hours **Max.Marks:60**

Answer any five questions
All questions carry equal marks

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1. How do you choose a reactor for series and parallel reactions and also give the reactor design considerations for the above reactions.

2. Discuss the role of RTD, state of aggregation, and earliness of mixing in determining reactor behaviour.

3.a) Discuss about zero parameter models
b) What are fluid-particle reactions? Discuss with examples
c) Differentiate between progressive conversion model and shrinking core model

4.a) What are fluid-fluid reactions? Discuss with examples
b) Explain about reactive distillation.

5. The first order isomerization reaction $A \rightarrow B$ is being carried out isothermally in a batch reactor on a catalyst that is decaying as a result of aging. Derive an equation for conversion as a function of time.

6. Discuss the kinetics in porous catalyst particles.

7. Discuss about the catalyst deactivation and regeneration in detail.

8. Discuss the following:
   a) Surface catalysis
   b) Extractive distillation

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