

Prof. Shahkar

LEC-40

11-12-12

Advanced Reaction Engineering

Course Overview

✓

Energy Balance

Stirred Tanks

Tubular Vessels.

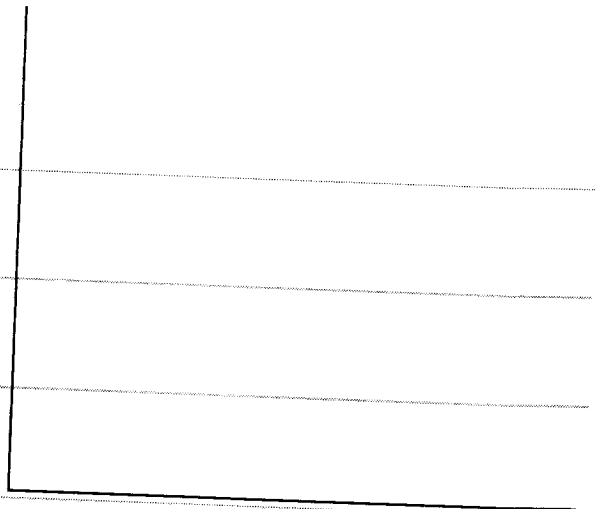
3

Transient operations

stability of steady states.

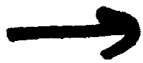
4

Practice Problems.



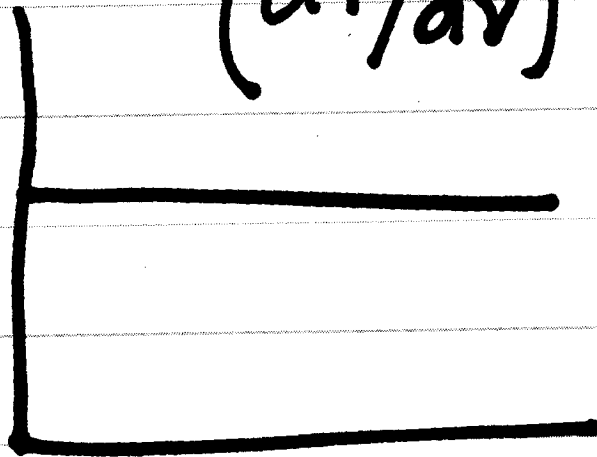
Practice Problems.

Cooling



(dT/dv)

T



Distance / volume

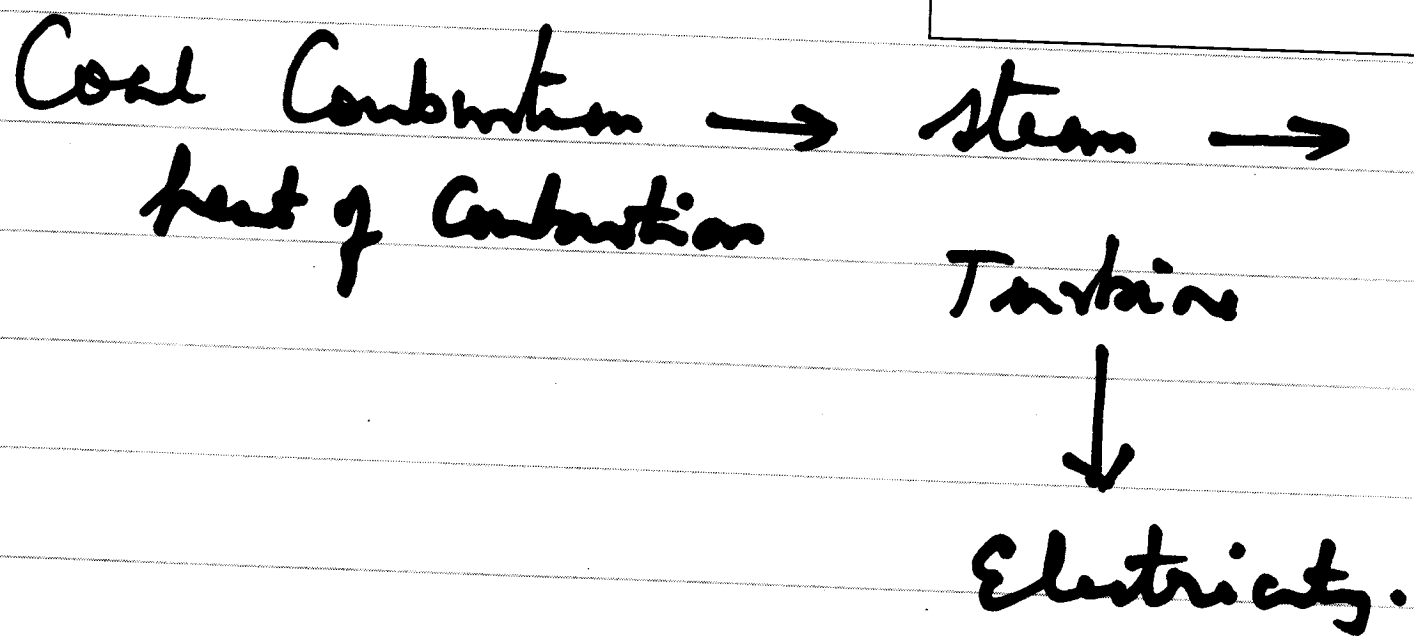
Constant T. =

$A \rightarrow B$ exo.

Heat is evolved.

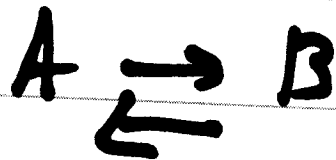
(Catalyst) -

b



Practice Problems

Chemical reaction no working
fluid in a turbine



Prachin Problem.

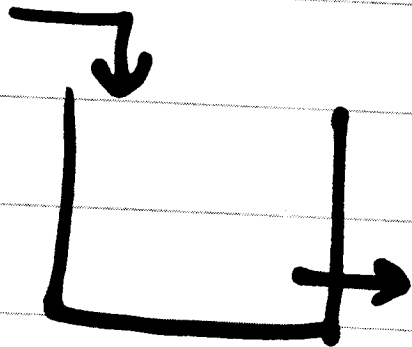
$A \rightarrow B$ (desired)

$A \rightarrow C$ (undesired)

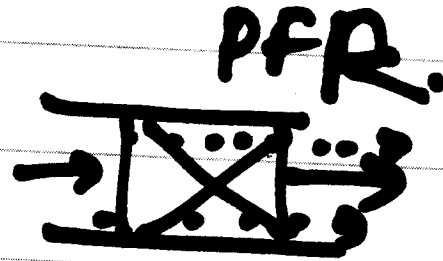
Praticia Problem.

$A \rightarrow B$ instantaneous

Ideal Reactors.

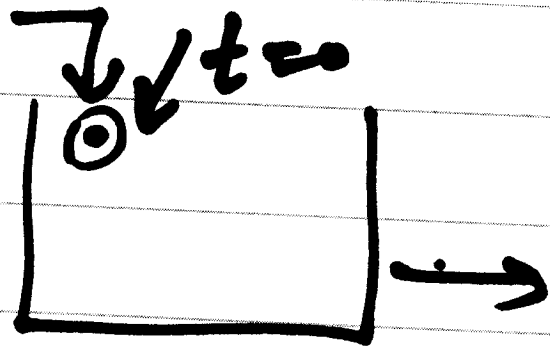


CSTR



PFR.

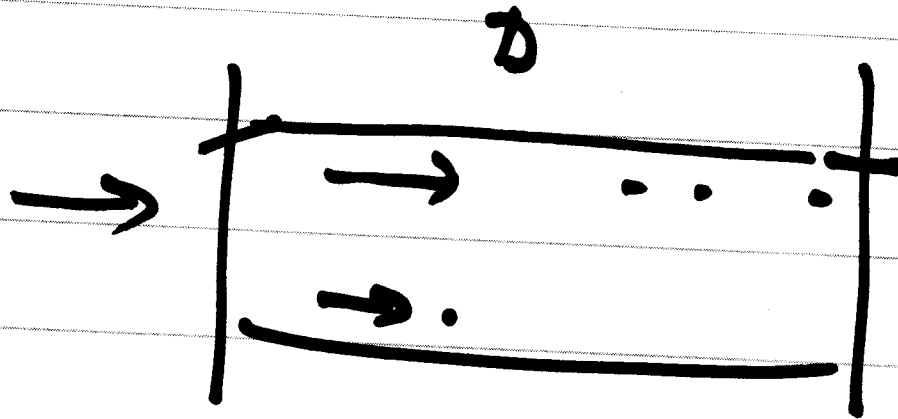
Residence Time Distribution



— Non Idealities.

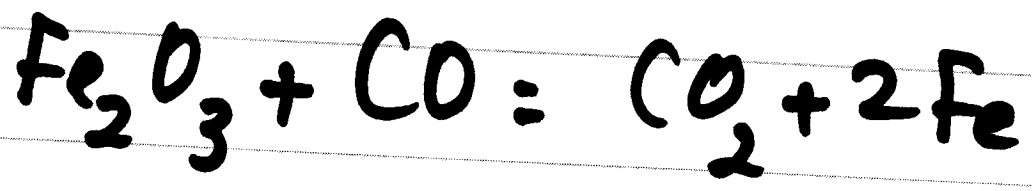
12
Practic Problems.

R.T.D.

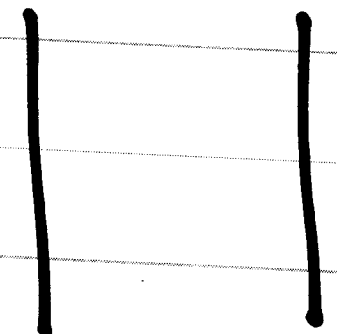
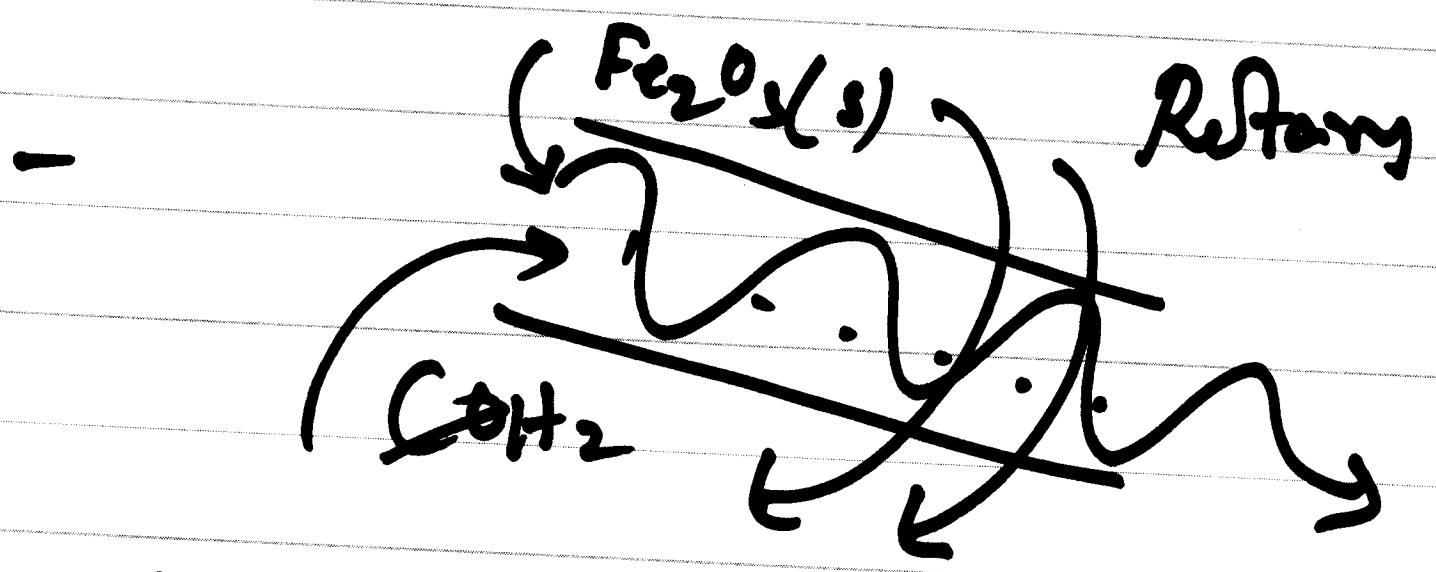


2 Min -

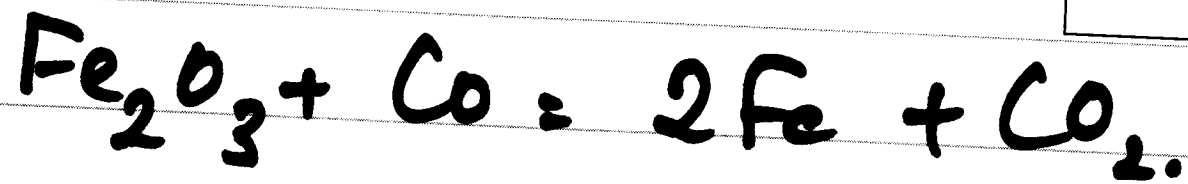
10 Min -



- Blast furnace

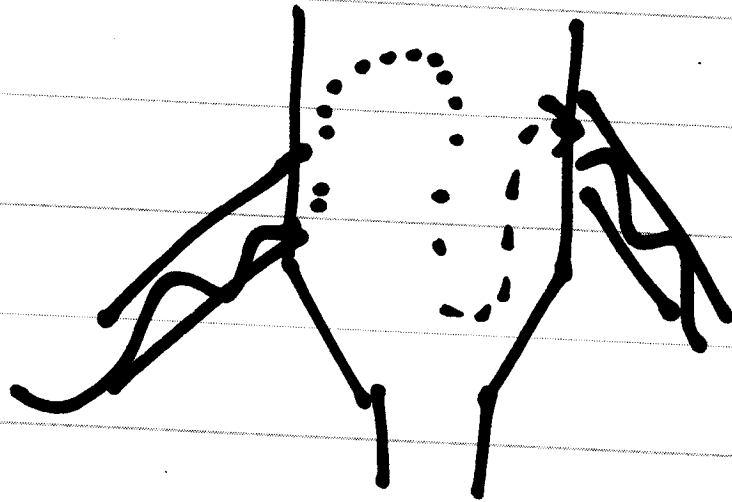
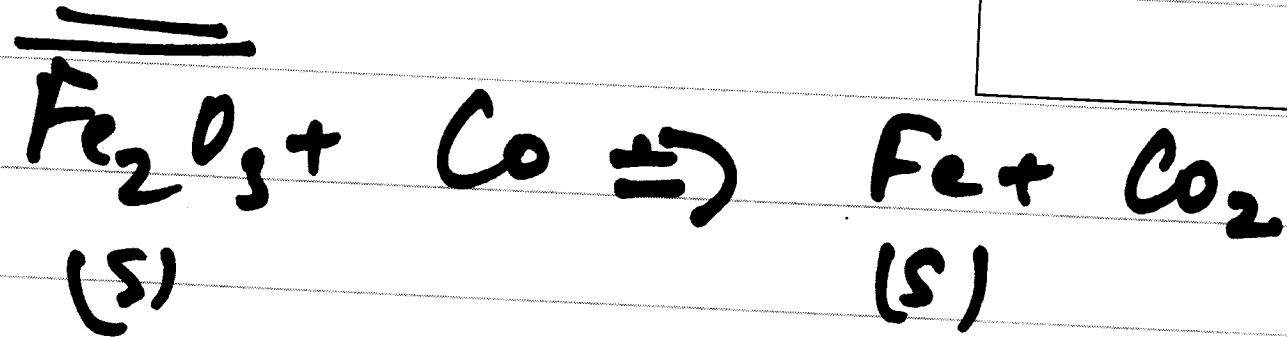


RTD analysis



$$K_p = \left(\frac{p_{\text{CO}_2}}{p_{\text{Co}}} \right)$$

15



Population below

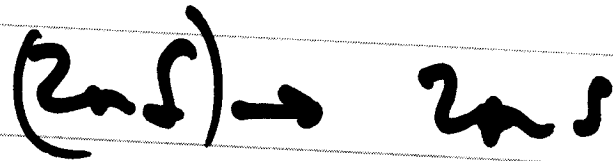
< T <

11

(Population balance)

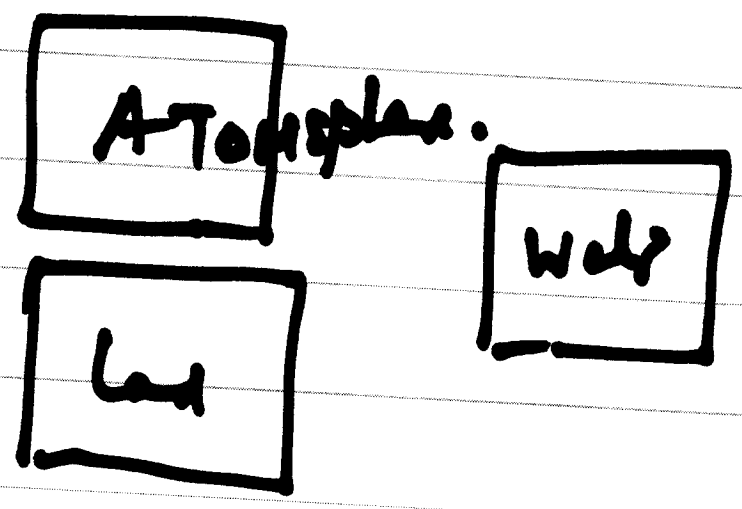
Birth and ~~immigration~~ death;

14
Gas-Solid Reactions.



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Enzyme / kinds / Microbial
kinds
Environment rivers



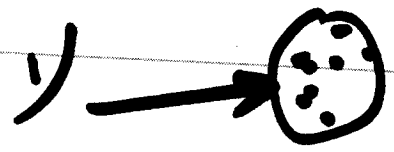
→ rivers → depletion of O_2 → Aquatic life affected.

⑨

Open Sag analysis of river

Receiving pollution may by Committee

Difference of Aestiva in four categories.

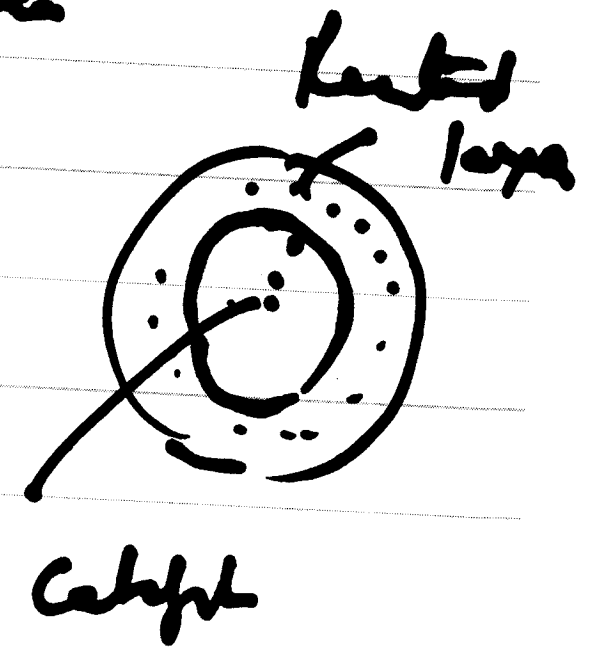


ext deepi
int deepi
Chond Aestiva

2)



b



21

Microbial Respiration (A/W).

