Total No. of Printed Pages:2

**SUBJECT CODE NO:- H-129**
**FACULTY OF SCINECE AND TECHNOLOGY**
**T.E. (Chemical) (Sem-II)**
**Chemical Reaction Engineering –II**
**[OLD]**

**[Time: Three Hours]** **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B
1. Questions No1 and Questions No.6 are compulsory
2. Solve any two questions from remaining of section
3. Assume suitable data if required & state it clearly.

## SECTION – A

Q.1 Answer the following ( any two) 10
a) What do you mean by progressive conversion model?
b) Determination of rate controlling step
c) Examples of various liquid solid reaction

Q.2 a) Explain in details dispersion model for non- ideal flow & list its uses. 08
b) Explain the multiple steady states in CSTR for isothermal condition. 07

Q.3 Explain the shrinking core model for spherical particle of unchanging size when reaction is controlled by diffusion through ash layer with chemical reaction Advantages of the model. 15

Q.4 Explain different models established for fluid – solid non catalytic reaction and give advantages & disadvantages of each 15

Q.5 Write note on 15
a) Tank in series model
b) optimum temperature progression
c) Hydrodynamic flow model

## Section – B

Q.6 Answer the following ( Any two ) 10
1) Fixed bed reactors
2) Promoters & Inhibitors
3) Reactors used for study the catalyst deactivation

Q.7 What are different types of catalyst poisoning? Explain the mechanism of catalyst deactivation. List the method briefly to control deactivation 15

Q.8 What are method used to measure the catalyst surface area? Explain the BET method with merit & demerit of it 15

Q.9 What is catalyst? Explain detail theories for catalysis with advantages, disadvantages for different reactions 15

Q.10 Write note on 15

1) Resistances in slurry reaction
2) Tank in series model for ideal reactor
3) Thiete model