Q.28 Discuss the effects of various variables on rate of reactions.

Q.29 Define first order and second order reaction. How does order of reaction differ from molecularity.

Q.30 Differentiate between homogeneous and heterogeneous reaction

Q.31 Give the constructional detail of steady state mixed flow reactor

Q.32 Draw the neat sketch of batch reactor and explain its working.

Q.33 What is activation energy? How does it affect the reaction rate?

Q.34 State Arrhenivs law and explain its significance in chemical kinetics.

Q.35 Discuss any two of the following

i) Chemical Equilibria

ii) Holding Time

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 Differentiate between:

i) fixed bed and fluidized bed reactor

ii) Mixed flow and plug flow reactor

Q.37 Write a short note on

I) Ultimate yield

ii) Kinetics of reactant

Q.38 Explain the construction and working of PFR with the help of neat diagram.

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5th Sem / Chem, Chem Engg. (Spl. Paint Tech). Chem Engg. (Spl Polymer Engg)

Subject:- Chemical Reaction Engineering

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 PFR Stands for

a) Plain free reactor b) Plug free reactor

c) Plug flow reactor d) None of these

Q.2 Sum of powers of concentration terms in rate equation is called_____ of reaction.

a) Order of reaction b) Overall order

c) Molecularity d) None of these

Q.3 As the chemical reaction proceed the rate of reaction

a) increases b) Decreases

c) Remains same d) None of these

Q.4 The most suitable reactor for carrying out an auto thermal reaction is

a) Batch Reactor b) CSTR

c) Plug flow reactor d) Mixed flow reactor

Q.5 The reaction which proceed with evolution of heat is called

a) Endothermic reaction
b) Photochemical reaction
c) exothermic reaction
d) None of these

Q.6 Equilibrium state is
a) Dynamic b) Static
c) Both d) None of these

Q.7 Chemical reaction involves the participation of
a) Electrons b) Protons
c) Neutrons d) Nuclei

Q.8 The batch reactor has the disadvantages of
a) High Labour b) High Handling Cost
c) Extra time to clean d) All of these

Q.9 Full form of CSTR is
a) Constant stir tank reactor
b) Constant still tank reactor
c) Continuous stir tank reactor
d) None of these

Q.10 Which of the following does not influence the rate of a reaction
a) Temperature
b) Concentration of reactant
c) Catalyst
d) Number of molecules of reactant taking part in a reaction

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Define order of reaction.
Q.12 Give one example of elementary reaction.
Q.13 Expand PFR
Q.14 Write any one heterogeneous reaction.
Q.15 Define resistance time
Q.16 Discuss about space time
Q.17 Write the unit of rate of reaction?
Q.18 Write an expression for zero order reaction.
Q.19 Give one example of irreversible reaction.
Q.20 What do you understand by molecularity.

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Differentiate between elementary and non elementary reaction with examples.
Q.22 Explain the working of MFR.
Q.23 Write a note on order of reaction.
Q.24 Define excess and limiting reactant with suitable example.
Q.25 Write the various factor effecting chemical equilibria. Explain any one.
Q.26 Compare CSTR and plug flow reactors in terms of operation and efficiency.
Q.27 Explain catalytic and noncatalytic reaction with one example each.