

- Q.24 Describe the effect of concentration on the state of chemical equilibrium in brief?
- Q.25 What is difference between exothermic reaction and endothermic reaction?
- Q.26 Explain the fixed bed reactor in brief?
- Q.27 Discuss the concept the holding time and space velocity in brief.
- Q.28 What is difference between molecularity and order of reaction?
- Q.29 Define and discuss first order reaction in brief.
- Q.30 Explain the fixed bed reactor in brief.
- Q.31 Discuss the concept of half life period of irreversible reaction in brief?
- Q.32 State and explain the Rate Law in brief?
- Q.33 Describe the surface area of reacting species on rate of chemical reaction?
- Q.34 Discuss the holding time and space velocity in brief?
- Q.35 Explain the different methods used to analyze kinetic data in brief?

SECTION-D

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

- Q.36 What is rate of reaction? Describe the different factors affecting rate of a chemical reaction in detail?
- Q.37 How will you classify the reactors into different categories? Discuss the continuous stirred tank reactor in detail with the help of neat diagram?
- Q.38 What is catalysis? Discuss the poisoning and regeneration of catalyst in detail with the help of suitable example?

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Roll No.

**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 The rate of a chemical reaction depends upon?
a) pressure b) concentration
c) temperature d) all of the above
- Q.2 Equilibrium of a chemical reaction as viewed by kinetics is a ?
a) dynamic steady state
b) static steady state
c) dynamic unsteady state
d) none of these
- Q.3 The order of a reaction may be?
a) zero b) fraction
c) whole number d) any one of the above
- Q.4 The rate constant for a first order reaction depends upon?
a) Initial concentration of reactants
b) reaction time
c) reaction temperature
d) extent of reaction

- Q.5 A batch reactor is characterized by ?
- constant residence time
 - variation in extent of reaction
 - Variation in reactor volume
 - Very low conversion
- Q6 Back-mixing is most predominant in?
- Continuous stirred tank reactor
 - plug flow reactor
 - batch reactor
 - semi-batch reactor
- Q.7 A reaction which proceeds with absorption of heat is called?
- exothermic reaction
 - endothermic reaction
 - combustion reaction
 - reduction reaction
- Q8 If the time required to change the concentration of reactant to half of its original value is independent of its initial concentration, the order of reaction is?
- zero
 - one
 - two
 - three
- Q.9 What is the effect of an inhibitor on the catalytic activity of a catalyst?
- Promotes the catalytic activity
 - no effect on catalytic activity
 - reduces the catalytic activity
 - stops the catalytic activity
- Q.10 A multiple reaction may be classified as?
- consecutive reaction
 - parallel reaction
 - mixed reaction
 - all of these

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SECTION-B

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

- Q.11 Name the type of reaction which requires atleast two phases to proceed?
- Q.12 Define the non-catalytic reaction?
- Q.13 Write one example of reversible reaction?
- Q.14 What is semi-batch reactor?
- Q.15 Name the type of reactor in which reactants or products do not flow in or out of the reactor during the reaction?
- Q.16 Which term is used to describe the number of reactor volumes of feed treated in unit time?
- Q.17 What is irreversible reaction?
- Q.18 Name the direction to which equilibrium shifts if the concentration of one or more reactant species is increased?
- Q.19 Write full form of PFR?
- Q.20 Which type of reaction proceeds with evolution of heat?

SECTION-C

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

- Q.21 What is difference between constant volume and variable volume batch reactor?
- Q.22 Discuss elementary reaction & non-elementary reaction in brief?
- Q.23 Explain the temperature dependency of rate equation using thermodynamic considerations?

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