

- Q.27 Compare MFR and PFR.
- Q.28 Difference between the simple and multiple reaction with example.
- Q.29 Define rate of reaction. Give rate of reaction in terms of concentration of reactants.
- Q.30 Write about Non-elementary reaction.
- Q.31 What is catalyst poisoning.
- Q.32 Write of bubble phase reactor.
- Q.33 Write important properties of catalyst.
- Q.34 Difference between the reversible and irreversible reaction with the help of example.
- Q.35 Liquid 'A' decomposes by first order kinetics and in a batch reactor. 50% of A is converted in 5 minutes. How long will it take to reach 75% conversion?

SECTION-D

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

- Q.36 Write about Plug flow reactor with help of neat diagram.
- Q.37 Write performance equation for Batch reactor.
- Q.38 Write notes on:
- Exothermic Reaction
 - Rate constant
 - Order of reaction

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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 With increase in temperature, the equilibrium conversion of a reversible exothermic reaction.
- Decrease
 - Increase
 - Remain Unaffected
 - None
- Q.2 Participation of _____ is involved in the occurrence of a chemical reaction.
- Protons
 - Neutrons
 - Electrons
 - None
- Q.3 A photochemical reaction is _____ light
- Initiated By
 - Accompanied with emission of
 - catalyzed by
 - None
- Q.4 A first order reaction is to be treated in a series of two mixed reactors. The total volume of the two reactors is minimum, when the reactors are
- Equal in size
 - of Different Size

- c) of such size that the ratio of their volume is
d) None
- Q.5 If a solid-gas non-catalytic reaction occurs at very high temperature, the rate controlling step is the _____ diffusion.
- a) Film b) Ash Layer
c) Pore d) None
- Q.6 The equilibrium constant of chemical reaction _____ in the presence of catalyst.
- a) Increase b) Decrease
c) Remain unaffected d) None
- Q.7 A chemical reaction occurs, when the energy of the reacting molecules is _____ the activation energy of reaction.
- a) Less than b) equal to
c) Equal to or more than d) None
- Q.8 The heat of reaction
- a) Depends on the pressure only
b) Independent of the mechanism of reaction
c) Depends on the mechanism only
d) None
- Q.9 Photo-chemical reactions occur in presence of
- a) Sunlight b) Darkness
c) Solid Catalyst d) None
- Q.10 For a _____ order reaction, the units of rate constant and rate of reaction are the same.
- a) Zero b) First
c) Second d) None

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SECTION-B

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

- Q.11 Write one example of non-catalytic reaction.
- Q.12 What is limiting reagent.
- Q.13 Write advantage of plug flow reactor.
- Q.14 Expand the MFR.
- Q.15 Write unit of reaction constant for zero order reaction.
- Q.16 What is selectivity.
- Q.17 Write Arrhenius equation.
- Q.18 Write example of autocatalytic reactions.
- Q.19 Write zero order reaction.
- Q.20 Expand the PFR.

SECTION-C

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

- Q.21 What is heterogenous reaction.
- Q.22 Write difference between the batch and plug flow reactor.
- Q.23 What is elementary reaction.
- Q.24 Write note on molecularity and order of reaction.
- Q.25 Write different type of agitator.
- Q.26 Draw a neat diagram of plug flow reactor connected in series and parallel combination.

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