

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-IV (NEW) EXAMINATION – WINTER 2020

Subject Code:2141306

Date:09/02/2021

Subject Name: Elements of Chemical Engineering

Time:02:30 PM TO 04:30 PM

Total Marks:56

Instructions:

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
Q.1	(a) Write down the advantages of Batch reactors.	03
	(b) Enlist the factors which affects the rate of reaction.	04
	(c) Give the classification of chemical reaction.	07
Q.2	(a) Enlist the methods used to determine kinetic data.	03
	(b) Describe constant volume system in brief with examples.	04
	(c) Write a short note on material balance in Constant volume batch reactor.	07
Q.3	(a) Explain the term RTD.	03
	(b) Write down the characteristics of tracer material.	04
	(c) Enlist types of chemical reactors and explain Batch reactor in detail.	07
Q.4	(a) Enlist methods to be used for injecting the tracer material.	03
	(b) Explain the thermodynamics first and second law.	04
	(c) Enlist types of chemical reactors and explain Plug flow reactor in detail.	07
Q.5	(a) Define Elementary and non-elementary reaction.	03
	(b) Give the difference between order of reaction and molecularity of reactions.	04
	(c) Explain RTD in Plug flow reactor.	07
Q.6	(a) Define the term rate constant.	03
	(b) Give the difference between Elementary and non-elementary reactions.	04
	(c) Explain RTD in mixed flow reactor.	07
Q.7	(a) Explain plug flow reactor in series.	03
	(b) Write a note on Arrhenius 'law for temperature dependency.	04
	(c) Write a short note on use of C curve.	07
Q.8	(a) Explain plug flow reactor in parallel.	03
	(b) Give the significance of Activation energy.	04
	(c) Write a short note on use of E curve.	07
