

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V • EXAMINATION – WINTER • 2014****Subject Code: 151301****Date: 26-11-2014****Subject Name: Elements of Chemical Engineering****Time: 10.30 am - 01.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Describe classification of reactions. **07**
(b) Explain variables that affecting the rate of reaction. **07**
- Q.2** (a) Enlist various definitions of reaction rate. **07**
(b) Distinguish below terms: **07**
1) Single and multiple reactions.
2) Elementary and non elementary reactions.

OR

- (b) Define: 1) Molecularity 2) Rate constant 3) Order of reaction **07**
- Q.3** (a) Short note: Temperature dependency from Arrhenius' law. **07**
(b) Give a brief note on temperature dependency from thermodynamics. **07**

OR

- Q.3** (a) Briefly explain temperature dependency from collision theory. **07**
(b) On the basis of applications give a note on batch reactor. **07**
- Q.4** (a) Shortly explain relationship between F and E curves. **07**
(b) Experimental methods (Non chemical) for finding E. Explain **07**

OR

- Q.4** (a) With advantage and disadvantage explain plug flow reactor. **07**
(b) Draw a neat figure of mix flow reactor and describe. **07**
- Q.5** (a) Define terms with equations: 1) Space Time 2) Space Velocity **07**
(b) State various thermodynamics laws and explain concept of heat transfer in thermodynamics. **07**

OR

- Q.5** (a) Draw a neat sketch of plug flow reactors in parallel with proper explanation. **07**
(b) Figure out equal size mixed flow reactors in series and explain **07**
