

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEM-V Examination-Nov/Dec.-2011

Subject code: 151301**Date: 22/11/2011****Subject Name: Elements of Chemical Engineering****Time: 2.30 pm -5.00 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) Briefly explain the various definitions of reaction rate. **07**
(b) What is homogeneous reaction? Explain reaction kinetics of rate of reaction. **07**
- Q.2** (a) Explain the temperature dependency from thermodynamics with Van't Hoff equation. **07**
(b) Briefly explain the temperature dependency from collision theory. **07**
- OR**
- (b) Make energy balance of reactor. **07**
- Q.3** (a) Differentiate between batch reactors and plug flow reactor. **07**
(b) Briefly explain the various methods RTD measurement. **07**
- OR**
- Q.3** (a) State and explain Thermodynamic Laws with examples and explain the concept of heat transfer in Thermodynamics. **07**
(b) How rate of reaction affected by different parameters. **07**
- Q.4** (a) Write a short note on space time and space velocity. **07**
(b) Explain plug flow reactor with diagram. **07**
- OR**
- Q.4** (a) Explain material balance for mixed flow reactor. **07**
(b) Explain variable volume batch reactor. **07**
- Q.5** (a) Explain activation energy in brief. **07**
(b) Explain order of reaction in brief. **07**
- OR**
- Q.5** (a) Write brief note on non-ideal flow. **07**
(b) Explain parallel reaction. **07**
