Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

SEVENTH SEMESTER B.TECH. (INSTRUMENTATION AND CONTROL ENGG.)

END SEMESTER EXAMINATIONS, NOV - 2017

SUBJECT: INSTRUMENTATION AND CONTROL IN PETROCHEMICAL INDUSTRIES [ICE 4006]

Duration: 3 Hour Max. Marks:50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitably assumed.

1A	With respect to distillation column explain the following. (i) Feed flow control (ii) Feed temperature control	3
1B	With a neat diagram explain rotary dryers and write its advantages.	5
1C	Describe the Chemical Catalytic conversion process.	2
2A	Explain liquid-liquid heat exchanger controls with neat diagrams.	4
2B	Define the following: 1. Degrees of freedom 2. Scaling 3. Gain and time constant for an heat-exchanger.	4
2C	Define the following. 1. Bubble point. 2. Dew point	2
3A	Explain with necessary plots the reaction rates and kinematics of a reactor.	4
3B	Write a note on the boiler equipment and its efficiency.	4
3C	What is non-adiabatic drying?	2
4A	Explain cascade control of evaporator with neat diagram.	5
4B	Explain the working of a horizontal-tube evaporator using a neat schematic diagram..	5
5A	Design a temperature-pressure cascade control loop for a heat exchanger.	5
5B	Define and elaborate on the various time constants in a reactor.	5