

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII (NEW) - EXAMINATION – SUMMER 2018

Subject Code:2171710

Date:05/05/2018

Subject Name:Process Dynamics and Control

Time:02.30 PM to 05.00 PM

Total Marks: 70

Instructions:

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

		MARKS
Q.1	(a) Explain Empirical mathematical modeling.	03
	(b) Explain semi-empirical mathematical modeling with advantage.	04
	(c) Explain the dynamic behavior of first order system with necessary figure and equation.	07
Q.2	(a) Define following terms a)Time constant b) Damping factor c) natural damping frequency.	03
	(b) Difference between batch reactor and continues reactor.	04
	(c) Draw and explain block diagram of process of cement preparation in cement plant.	07
OR		
	(c) Explain the dynamic behavior of second order system with necessary figure and equation.	07
Q.3	(a) Write advantage of theoretical modeling.	03
	(b) Draw temperature control of chemical reactor.	04
	(c) Write short note on distillate reflux flow control.	07
OR		
Q.3	(a) Write the types of pumps.	03
	(b) Write short note on logic control in batch process.	04
	(c) Explain the unit operations used in paper industries with suitable process flow diagram.	07
Q.4	(a) Explain one element feed water control scheme for boiler drum level control.	03
	(b) Explain Feed forward control scheme of steam pressure in boiler.	04
	(c) Describe boiler and its components in detail with figure.	07
OR		
Q.4	(a) Draw a scheme of closed loop control of uncontrolled auxiliary fuel.	03
	(b) Explain two element feed water control scheme for boiler drum level control.	04
	(c) Draw and explain block diagram of process of pharma Industry.	07
Q.5	(a) Write types of heat exchanger.	03
	(b) Write short note on sequential control in batch process.	04
	(c) Write short note on boiler optimization.	07
OR		
Q.5	(a) Draw two two-way valve control scheme for heat exchanger.	03
	(b) Draw and explain Cascade control scheme of heat exchanger.	04
	(c) Explain the temperature control in chemical reactors.	07
