Cont	No.	Envolment No.	
Seat	NO.:	Enrolment No	
		GUJARAT TECHNOLOGICAL UNIVERSITY	
BE - SEMESTER-V(New) • EXAMINATION – WINTER 2016			
Subject Code:2151705 Date:19/13			1/2016
	•	Name:Process Control Systems	
Time: 10:30 AM to 01:00 PM Total Marks			
Instr	ruction		
		Attempt all questions.	
		Make suitable assumptions wherever necessary.	
	3.	Figures to the right indicate full marks.	
			MARKS
Λ1		Short Questions	14
Q.1	1	Define controlling or manipulating variable	14
	2	What will be the integral gain if integral time in PID controller is	
	_	0.1 sec.	
	3	Give example of any FOPDT model.	
	4	Explain swelling effect in the boiler.	
	5	Is transfer function valid for non linear system?	
	6	What do you mean by neutral zone?	
	7	Give any one application of PI controller mode?	
	8	Define proportional band in P controller mode	
	9	Define Integral squared error (ISE).	
	10	Give formula for discrete realization of derivative action	
	11	What is the main effect of measurement lag in the control system?	
	12	Define damping factor ξ .	
	13	Draw response of any first order system.	
	14		
Q.2	(a)	Using the example of an air conditioner (AC), explain servo and	03
	(1)	regulatory response of the control system	0.4
		Explain how plant operating conditions are determined.	04
	(c)	Derive a mathematical model of a system having two CSTRs in series.	07
	(-)	OR	07

OR

Q.5	(a)	Write short note on adaptive control scheme.	03
	(b)	Explain the split range control for reactor pressure control	04
	(c)	Write short note on velocity and position algorithm of PID control.	07
